SUPPLEMENT.

je Kining Immal,

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

No. 1917.—Vol. XLII.]

LONDON, SATURDAY, MAY 18, 1872.

Original Correspondence.

THE SCOTCH IRON TRADE-No. IX.

THE CARNBROE IRONWORKS.

the course of the series of articles of which this forms a part Ardeer and Glengarnock Ironworks have been fully described. Cambroe Works belong to the same proprietors, Messrs. Merry d Caninghame, and were the first works of their kind which these all-known ironmasters projected, situated in the parish of Bothell, about 1½ mile from Coatbridge. The Carnbroe Ironworks ocpy a highly advantageous position on the south side of the Calder, mall but tortuous stream, to which they are indebted for an ample poly of water. Their facilities in regard to communication with pply of water. Their facilities in regard to communication with a mineral fields from which the raw material is obtained are most upplete, as they have direct access to the main lines of both the ideonian and the North British Railway. They have also, by means the Monkland Canal, ready access to the various ports in the South Sootland, from which the pig-iron is transshipped to all parts of world. A short line runs between the works and the Dundyvan an at Coatbridge, where Messrs. Merry and Cuninghame have a reg depot on the banks of the canal; but the greater part of the m is dispatched per rail to the Western ports.

The Carnbroe Ironworks were projected about the year 1838 by a mpany composed of three gentlemen. These were Mr. Alexander lison, who retired from the concern in 1844; Mr. James Merry, of elladrum, Mr. for Falkirk burghs; and Mr. Alexander Cuningme, father of the gentleman who now undertakes the active mangement of the works. Commencing with only four furnaces, the runbree Works have since been extended to six furnaces, which for number of years past, except when one of them required re-lining,

mbree Works have since been extended to six furnaces, which for number of years past, except when one of them required re-lining, other repairs, have been in constant operation. None of the furces possess any novel features. They are all built on the old-hiosel principle, with soware bases, and archways leading into a tuyeres. Their average height is 40 ft. to the charging ports, top of the furnace being 12 ft. higher. The internal diameter at a top of the furnace is 8 ft., the external diameter of the base being of the Intrace is 31t., the external diameter of the base benging in the two exceptions, are provided with eight perseach. The tuyeres, which are all made at a foundry content with the works, are 9 to 10 in. in length by 11 in. external mater. Each furnace is provided with two heaters, and each ster is fitted up with 12 pipes, which are formed of the old horse-pattern. Unlike the heaters of some other works in the Coater of the coat ismeter. Each furnace is provided with two heaters, and each seter is fitted up with 12 pipes, which are formed of the old horsehe pattern. Unlike the heaters of some other works in the Coathridge district, those at Carnbroe are built by the side instead of at he back or front of the furnaces. The charge used is as follows:—for No. 1 brand, 16 cwts. of claim or ironstone, and cwts. of limestone; and for No. 2 brand, 16 cwts. of coal to 14 cwts. If char, and 2 cwts. of limestone. The ironstone is chiefly brought from Oakle; or Fifeshire; from Garscadden, in Dumbartonshire; and from Milton, Lockart, and Carluke, in Lanarkshire. It is also rought from Rochsolloch, near Airdrie, where Messrs. Merry and buninghame hold mineral leases of considerable extent. With resence to the coal, we may remark that it is brought from places qually remote. The company's leases on the Duke of Hamilton's state, at Motherwell; on Lord Belhaven's grounds, at Haughhead, sear Wishaw; and at Craig Neuk and Sunnyside, are all laid under abidy for the supply of the Carnbroe Works. The chief source of he limestone supply is Milton Lockart, in Lanarkshire, where there are pits in which ironstone and lime are worked alternately. By rivate lines of their own, or by means of the main lines of the different railway companies, Messrs. Merry and Cuninghame have direct communication between their mineral fields and their extensive ironworks. We are indebted to the kindness of Mr. Cuninghame for an opportunity of inspecting the different works of the firm, and for the readiness with which every available information bearing upon their history or special features was placed at our disposal. To the same gentleman we are obliged for the means of ascertaining that the consumption of raw material at the Carnbroe Works for the six months ending Dec. 31 last was 47,418 tons of inostone, 61,827 tons of coal, and 11,536 tons of limestone, being altogether 120,781 tons of mineral used in the course of the half-year. The consumption is now, if anything, above

of coupled engines were only introduced about six years ago; they are the workmanship of Mr. Barclay, of Kilmarnock. The length of stroke is 7 ft, and the diameter of the blowing cylinder is 6 ft, that of the stroke is 7 ft.

of the steam cylinder being 36 in. These engines are worked at a Pressure of 34 lbs., and 18 revolutions per minute.

A plentiful supply of water is obtained from the Calder burn; it is pumped from the burn into a reservoir, about a quarter of a mile distant from the works, and from thence it gravitates to the furnaces and boilers. The water is lifted to the reservoirs by means of a d boilers. The water is lifted to the reservoirs by means of a major, worked off the single beam-engine.

by EET be

naces there are two immense chimney stacks, each 150 ft. in height. Into one of these the smoke from the heaters is conducted by underground flues; into the other the smoke of the boilers is conducted by similar means.

ground flues; into the other the smoke of the boilers is conducted by similar means.

The average production of the furnaces is 13 tons per shift, or 26 tons per twenty-four hours per furnace. Last year the total production of the works was upwards of 50,000 tons, which, assuming that the average price over the whole year was 80s. per ton, would yield a net revenue of over 200,000l. Upwards of 350 men are employed about the works, including the blast-furnaces, the foundry department, and an ironstone pit within the boundaries which the works properly comprise. The current rate of wages paid to the blast-furnacemen is as follows:—Keepers, 7s. 10d.; assistants, 5s. 3d.; and fillers 5s. 6d. per shift. Within the last month, these three classes of workmen have had an advance of one-halfpenny per ton at the Carnbroe Works.

It will be observed from what we have already said that the Carnbroe Works are rather behind hand in the matter of new processes and apparatus. This is principally due to the fact that the strong and stiffening demand during the last twelvemonths has taxed the productive capacity of the works so far as to prevent the possibility of laying off even one of the furnaces for the purposes of experiment or improvement. At Glengarnock, as we pointed out in a previous article, Messrs. Merry and Cuninghame have successfully dealt with the erstwhile difficult problem of utilising the furnace gases; and it is quite likely that the same principle of economy will soon be applied to the Carnbroe Works. But meanwhile the firm are not losing sight of other improvements. They are keeping a watchful eye upon the new gas furnace which Mr. Fernie is building at the Monkland Works, and should it realise all the expectations formed as to its advantages over the common furnace, it is on the cards to introduce the patent at Carnbroe, "when the fulness of the time has come."

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In the foundry department at Carnbroe all the castings required for the furnaces and other parts of the establishment are made. Here, also, the wagons and locomotives are taken for the purposes of repairs. To facilitate the repair of rolling-stock a joiners' shop and a saw-mill are carried on in connection with the foundry. Cas is manufactured on the premises for the supply of the offices. snop and a saw-min are carried on the connection with the foundry. Gas is manufactured on the premises for the supply of the offices and the houses in the immediate neighbourhood. Their surplus stock of iron is stored by Messrs. Merry and Cuninghame on a piece of ground immediately adjoining the main line of the Caledonian Railway; but the stock is at present comparatively small, being only 8000 tons.

SILVER MINING IN AMERICA.

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SIR,—In the Supplement to last week's Journal a general view of the subject was taken, both as to the formation and the yield of silver mines in America. Those who hold up their hands in astonishment, and almost lose their breath with surprise and incredulity, when a nominal capital of 1,000,000% for a silver mine is mentioned, as in the case of the Emma Mine, of Utah, may be quieted by the facts mentioned of yields of mines amounting from 3,000,000. to 45,000,000%, the names of which are given. It is proposed in this and succeeding articles to show what may be expected in the future of "Silver Mining in America," as the result of investing English capital with American enterprise, especially now that almost every element of uncertainty of cost of production is eliminated. In ante railroad times, when the mining regions were reached only by a sail to the Isthmus and thence to California, or by the more tedious and laborious trip across the uninhabited plains on wheels, thus unavoidably enhancing the cost of food and supplies to a point that of itself almost destroyed hope of profits; add to which total inexperience of first settlers in the entire subject of mining for the precious metals, and it is marvellous that any headway was made. Yet, behold the results! It is only about a score of years since the first discovery of gold in California, which led subsequently to the silver discoveries in the now State of Nevada, and the Territories of Utah, Colorado, Wyoming, Montana, and Idaho localities, that 20 years ago were almost exclusively in the hands of the Aborigines, but now occupied by something near nine hundred thousand hardy, thrifty, and enterprising people, whose industrial occupation is mining for the precious metals, and agriculture—pastoral and arable. In that time they have not only subjugated the wilderness, but have in addition practically mastered the subject of mining; and have, alone and unaided by outside capital, save only to a very small amount, brought their yearly

Nevada thus far has been considered the great silver-producing State, more because of its famous Comstock lode, whose average yield for 12 years has been upwards of 2,000,000., and because of yield for 12 years has been upwards of 2,000,000L, and because of more recently developed mines that are also becoming famous; as the Eureka Consolidated Company's mines, which has paid in the last 18 months nearly 400,000L in dividends on a nominal capital of 200,000L, and without any working capital from the start. This company's mines were capitalised at 60,000L in London and rejected. The Raymond and Ely Company's mines, which are yielding at the rate of 500,000L per annum, are in Nevada, as also the Pioche and Meadow Valley Company's mine, all of which are becoming famous by their rich yields.

The Richmond Mine, owned by the Eureka Consolidated Company of California, and the Richmond Consolidated Company of

pany of California, and the Richmond Consolidated Company of London bid fair to rival the celebrated Comstock by its enormous yield of bullion. As already stated, the Eureka Consolidated has paid in the last 18 months 400,000% in dividends, and those who know say that the Richmond Consolidated can pay that much in the next 12 months. If so, it unmistakably stamps the Richmond Mine as being second only to the Comstock. It is not to be wondered at that Nevada, containing such mines as those enumerated, should have such a silvery reputation, and that its annual yield is attaining such immense proportions, fed as it is by the thousand little streams that flow from its lesser mines. But it has competitors for the front rank, and their claims will be stated in future articles. Let no one imagine, much less believe, that "Silver Mining in America" is simply a thing of the pressing moment. Its vitalising influences are become Midway along the line of furnaces there is an elevator, built in the castellated style, and having a flagstaff in the centre. From the top of the elevator gangways branch off to each of the furnaces, and two engines, in a small building adjoining the foot of the elevator, are used to hoist the raw material. At either end of the row of furnaces are becoming apparent to all who think upon the subject. As a reliable in-

dustrial enterprise, it cannot be ignored much longer by the best

GOLD MINING IN COLORADO.

SIR,—The figures already given apparently prove the average value of 282 lodes in Gilpin County to be about \$35 per ton. Although this may be true of that number out of the many hundreds discovered, yet it is not a fact that all of the 282 lodes contain ore of that average value per ton. Quite a large number of the assays of samples from some lodes proved them to be worthless as mined. Had these assays here ony witted in the calculation the average would. samples from some lodes proved them to be worthless as mines. Had these assays been omitted in the calculation the average would have been larger than \$35 per ton. This fact being stated strengthens the presumption that this figure may be taken as the average value of workable mines with very great confidence. This average has been contrasted with the average value of ore raised in Australia, Brazil, and California, with great apparent advantage to Colorado. Hence the question very naturally arises, why is it that these ores have not been worked to a large profit, whereby the district would have gained a reputation unparalleled in gold production? A satisfactory answer would involve a history of the first treatment adopted, the after trials, toubles, and experiments in processes, the fruitless efforts and the immense losses sustained—a story too tedious, and now profitless, for your columns, profitless because a correct knowledge of the ores and methods of treatment have been gained. But a part of this answer very properly relates to the character of the mineral or vein matter, and the causes of loss when treated by stamps and battery amalgamation. To this some attention may be given with interest to your readers, especially to those who have had their minds influenced to the prejudice of Colorado gold mining.

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tion may be given with interest to your readers, especially to those who have had their minds influenced to the prejudice of Colorado gold mining.

Those familiar with the early facts connected with the discovery of gold in Colorado remember the wonderful productiveness of the placers and gulches, the richness of the surface rock, and the decomposed vein material found to considerable depths in the crevice of the lodes. It was the subsequent and sudden alteration in yield which confounded everyone, and whilst leaving all in perplexity as to the cause, produced the natural impression of poverty. A like experience had not followed the discovery of gold in California nor in Australia, the two leading districts of modern times. It was known that in these districts iron pyrites accompanied the vein matter to a limited extent, and at times caused inconvenience and loss, but there were few or no mines rendered unworkable by reason of excessive deposits of pyritic material. Difficulty on this account had been met, more injuriously, in the Appallachian gold fields of the Southern States, but it was then not understood nor appreciated. To a limited extent the same difficulty had been encountered in Brazil by the St. John del Rey Mining Company, which, with a pluck characteristic of English capitalists, triumphed over all difficulties, after expending two or more immense assessments in experiments and trials, profitable only because a correct method of working was finally established. Like difficulties had been experienced in the Ural, in Hungary, Piedmont, and elsewhere in vein mining, difficulties which had been surmounted by appropriate remedies, mainly mechanical, because the percentage of sulphurets was really small—an inconvenience rather than an obstacle to a purely mechanical method of reduction.

The vein matter, the mineral carrying gold in the lodes of Gilpin County, was not quartz slightly interspersed with auriferous pyrites

small—an inconvenience rather than an obstacle to a purely mechanical method of reduction.

The vein matter, the mineral carrying gold in the lodes of Gilpin County, was not quartz slightly interspersed with auriferous pyrites of iron, but rather auriferous pyrites of iron and copper, galena, blende, and sulphuret of silver, associated with quartz, porphyry, sienite, &c. After the decomposed vein matter had been removed (readily worked in the stamp mill) this sulphuretted matter was encountered in vertical seams—at one place thin and numerous, then running together, forming a vein of 2, 3, and at times 4ft, in width of solid mineral, the components of which were the metals and sulphur almost free of gangue. The bulk of crevice matter held these sulphurets mingled with the gangue to a large extent, fully 20 per cent. on the average. A like occurrence had not been met elsewhere. The workable mines of California do not contain an average of 3 per cent., nor do those of the other districts mentioned, as a general thing. The Eureka of Grass Valley, a representative mine of California, recovers about 1½ per cent. of simple auriferous iron pyrites by concentration—there is no 20 per cent. of iron and copper pyrites, galena, blende, and sulphide of silver, as in Gilpin County. There the stamp mill, followed by mechanical devices for amalgamation, secures very nearly all the gold; here a copy of the same devices would permit nearly all the gold and silver to pass away with the pulp. Yet the Californian and Australian devices for milling and amalgamation were the only ones known, and hence were used in Colorado, and are yet upon mill ore, since the erection of smelting works for what can be hand-selected out. When skill and thorough care is used, perhaps 40 per cent, is saved by the mill, as has been stated, at a working expense which should cover a close yield of the total contents, hence what would be a very large profit on the industry is allowed to pass off in the waste.

THE RELATION OF SILVER TO GOLD.

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This relation was unnoticed until attention was directed to its importance by your correspondent. As an alloy silver is never absent, but until these ores were handled mines producing gold ores seldom or never produced the sulphides of silver in appreciable quantities. Such ores are unknown in California, and no mention is made of the sulphide of silver existing in the gold-bearing rocks of Australia. Such ores are unknown in California, and no mention is made of the sulphide of silver existing in the gold-bearing rocks of Australia. Nor is the presence of copper notable in either of these regions, whereas in the Gilpin County aurifereous veins the sulphide of silver is an important element of value, as is also copper. It is, perhaps, sufficiently curious to remark that this sulphide of silver accompanies the mineral when distributed throughout the gangue (in mill ore) to a greater extent than it exists in the solid pyrites (smelting ore) from the same vein, as will be seen from the following figures:

423 assays of mill ore made during two years—samples Gold.

611-61

Here \$100 in gold carries \$77-65 in silver.

216 assays of res—the poorest mill ore taken out ... 61-15 ... 43-24

Here \$100 in gold carries \$70-84 in silver.

78 assays of ores—the poorest mill ore taken out ... 61-15 ... 43-24

Here \$100 in gold carries \$70-84 in silver.

By taking the average of these 712 assays, representatives of all the

By taking the average of these 712 assays, representatives of all the ores raised during two years, we have the relation of \$57.58 in silver to every \$100 in gold. The average alloy of gold and silver, where gold is found native, throughout the world is about \$21 in silver to \$100 in gold. The alloy of bullion produced by the mills of Gilpin

County is about \$20 in silver to every \$100 in gold. Hence the mills get only the native alloyage; all other silver in the ore escapes amalgamation, and is lost if not caught with the tailings. At the mill ore average that loss would be \$57.65 in silver gone off for every \$100 of gold contents of the ore. By the average, that loss would be \$37.58 gone off for every \$100 of gold contents of the ore. But since in many cases the tailings are stopped, piled up, and afterwards buddled (concentrated), another element must be taken into consideration.

Consideration.

220 assays of tallings (samples taken during two years from several piles representing very many thousands of tons of original ore) show \$84.92\$

Here \$100 gold carries \$25.43 silver.

Now, if there had been no sulphide, the gold in the tailings should show the same relation in silver as in the original ore, which was \$77.65 in mill ore, or \$57.58 averaged, to the \$100 in gold. Hence a loss in silver, on the average, of \$32.15 to every \$100 of gold yet remaining in the tailings. This loss represents the loss of silver (sulphuret) at the mill flow, the sulphuret being exceedingly friable and easily carried off in the water as slum, and may be stated briefly. For every \$100 in gold put in the tailings \$32.15 in silver have gone off irrecoverably in the flow of the mill. Now, since at least 40 per cent of the gold in \$35 ore is thus sent to the pile of tailings, the loss of silver may be calculated. But the loss of silver does not stop here. These tailings have now to be buddled (concentrated), whereby another loss of the sulphide is brought about.

another loss of the sulphide is brought about.

In 132 assays of concentrated tailings (representing the result of buddling very many thousand tons of mill tailings) the relation of silver was found to be \$5.58 to \$49.42 in gold. Here \$100 in gold carries only \$17.51; a change in buddling from the average of \$25.43 to \$17.51, a loss of \$7.92, or over 30 per cent.

LOSS OF GOLD BY MILLING.

Loss of Gold By Milling.

The loss in gold occurs—I. By reason of the sulphates of iron and copper present in the water. Pure spring water changes blue litmus to red; the ore coming wet from the mine increases the strength of this solution, and since the same water passes through many mills, as well as absorbs sulphates from accumulating piles of tailings in the gulches, the water used in the batteries is really well impregnated with the sulphates. This cuts up and decomposes the mercury, which flows off with the pulp, carrying gold with it in suspension—2. Ores pounded in connection with sulphurets and in sulphate water yield gold coated with a substance not soluble in mercury, hence free gold escapes amalgamation and flows off in suspension—3. Sulphurets enclose particles of gold, and unless completely released, such enclosed particles go off with the pulp, and if not caught among the tailings such gold is lost. Hence the loss of gold in milling such ores is inevitable. This loss may be set down as never less than 10 per cent., and may be very much more.

The next loss of gold occurs when the pile of tailings comes to be buddled. This loss will generally reach 25 per cent. of the gold—perhaps over 50 per cent. of the gold in the tailings. Tests have established this, and it is well known that a pile of tailings never produces a yield anything near the figure expected. Calculations involving a deal of figuring will develope a result somewhat like the following, the ore valued at \$35 per ton.

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Roughly stated there are \$20 gold and \$15 silver.

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GOLD YIELD PER TON.

In gold bullion, per ton of ore, by mill

Yield of gold per ton

SILVER YIELD PER TON.

Silver saved in alloyage with gold

Yield of silver saved by buddle.

Yield of silver per ton

GOLD LOSS PER TON. \$13.40 Gold loss per ton "by the buddle....

Silver Loss per ton.

Loss of silver per ton. 7.71 Original value of the ore
The loss of gold \$6.60 per ton, or 33 per cent.
The loss of silver \$7.71 per ton, or 52 per cent. nearly,

A loss on the value of the ore of 41 per cent. after the expenditure of a manipulating cost more than sufficient to have covered a close saving of whole contents. A result equal to this can be assured only by the best conducted w-rks on the stamp-mill and buddle system of working.—Central City, April 25.

B.

ON THE FORMATION OF GOSSAN.

ON THE FORMATION OF GOSSAN.

Sir,—At the beginning of this year a very interesting paper on Gossan was read at the Miners' Association of Cornwall and Devon, by Mr. W. Argall, and duly reported in the Journal of Feb. 10. It is not my intention to criticise that paper, but I may refer to it as the most complete in details that has yet come under my notice; and much credit is due to the author for having collected together a considerable number of valuable facts. It will be seen, however, on perusing it, and by the few other more or less scanty observations of other authors upon this subject, that the true nature of gossan, or rather its mode of formation, has hithertoescaped the most careful observers. Perhaps some of your readers may remember a short letter of mine upon the minerals of the Utah district, which appeared not long since in your columns. In that letter, referring to some extraordinary specimens of ore examined in my laboratory in London whilst Prof. Silliman was investigating them in America, I was able to corroborate his statement that a most wonderful desulphurising agency had been at work after, or during, the production of these ores in Nature. So that, instead of meeting with sulphides of lead, copper, and silver in the usual form, we find only the residues of these sulphides intimately mixed with their products of oxydation and carbonisation. At the same time I said that I would refer at an early opportunity to the formation of gossan, which, in my opinion, has evidently originated in a very similar manner.

Those who have mines in Cornwall, as well as in other parts of

to the formation of gossan, which, in my opinion, has evidently originated in a very similar manner.

Those who have mines in Cornwall, as well as in other parts of Europe where metalliferous veins are abundant, are well aware that spathic iron (carbonate of protoxide of iron) is a constant portion of the gangue in some of the most valuable lodes, and that white quartz as invariably accompanies this spathic iron. Spathic iron and quartz constitute the gangue of some of the most important copper and silver ores; and it has been my good fortune to trace the Cornist gossan directly to the spathic iron, both in the neighbourhood of Losswithiel and in the Callington district, where the transition is often so exceedingly gradual that it is almost impossible not to perceive that the one has been formed at the expense of the other. This occurred in the early part of the year 1862, and ever since my opinion of the nature and formation of gossan has remained unshaken. Gossan is formed by the weathering of lodes consisting largely of spathic iron and quartz; but this weathering may have occurred under peculiar circumstances, and the result may have been hastened or exliar circumstances, and the result may have been hastened or extended in early ages by the action of aqueous vapour, in the form of superheated steam; and, in the case of the Utah ores, to this agency

superheated steam; and, in the case of the Utah ores, to this agency has doubtless been added powerful currents of carbonic acid gas.

Anyone who has perused the results of the experiments made formerly by my ingenious friend, Prof. Daubrée, member of the French Institute, will certainly have been struck by the great part which superheated steam has evidently played in the formation of crystal-line minerals; but in the case of gossan it may not have required more than currents of warm moistair to effect the complete weathering of large masses of spathic iron in a comparatively short time, to transform it from a hard crystalline mass to a powdery soft mineral, whilst it changed in composition from carbonate of protoxide of iron into a hydrate of peroxide, losing its carbonic acid, and absorbing oxygen and water. Showers of rain, or streams of water, would easily carry off some of this newly-formed substance (hydrate of peroxide of iron), and leave the quartz more or less cellular, its cavities being lined, or partially filled, with this hydrate of peroxide of iron, just as we find them at the present time. The same action may still be seen in operation on many points of the earth's surface, though cartainly on a much less extensive scale than formerly.

It will easily be seen from this of what importance it is to the explorer of mines and mining districts to possess accurate analyses of gossans, for whatever metallic substances are found in such analyses

ossans, for whatever metallic substances are found in such analyses

are sure to be met with more or less abundantly in depth. For instance, we know by long experience that spathic iron and quartz form a very considerable portion of the gangues of tetrahedrite, or grey copper ore, copper glance, ruby and black silver ores, copper pyrites, and sometimes of blende, arsenical pyrites, tinstone, and a few other less important minerals. And though it often occurs that no mineral of value can be detected in gossan by the eye alone, a careful chemical analysis will show what may be expected in the lode at a little depth. I recollect being requested, many years ago, to make chemical analysis will show what may be expected in the lode at a little depth. I recollect being requested, many years ago, to make a careful chemical examination of some Cornish gossan from a property recently purchased, in which stones no metallic ore whatever could be discerned, even with the aid of a microscope. The analysis, nevertheless, showed 13 ozs. of silver to the ton, and unmistakeable indications of copper, and I accordingly reported that both silver and copper ore would most certainly be met with in depth. Now, long before this mine had reached the 60 it yielded tetrahedrite ore, which in bulks of several hundred tons assayed 42 ozs. of silver, and from 5 to 8 per cent. of copper.

which in bulks of several hundred tons assayed 42 ozs. of silver, and from 5 to 8 per cent. of copper.

Another somewhat similar case was furnished me shortly afterwards by gossan which contained native silver in exceedingly fine threads, which could just be detected by means of a powerful lens. This gossan ran into the well-known quartz and spathic iron lode, giving fine bunches and veins of brittle silver ore. Not the slightest trace of copper could be detected in this gossan, but the analysis showed a minute quantity of antimony. Hence the conclusion that antimonial sulphide of silver was certain to be found, which soon afterwards proved to be the fact. I could quote several other more or less interesting cases of a similar nature if your space would allow it. As far as I am able to judge, gossan in Cornwall is more often connected with lodes bearing copper and silver than with other meconnected with lodes bearing copper and silver than with other metals; but it is occasionally met with in the back of lodes containing galena, for instance, at the Phœnix Silver-lead Mine, and the presence of tin oxide in gossan may sometimes prove a very useful indication.

indication.

I trust I have shown how gossan originated in Nature. It is essentially a mixture of quartz and hydrated peroxide of iron, the latter being entirely derived from the spathic iron of the lode by oxidation and hydration, and the analysis of gossan has indicated in all cases that have come under my observation what minerals the lode would yield in depth—in other terms, what would be the nature of the mine.

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COAL MINING IN CAPE BRETON.

COAL MINING IN CAPE BRETION.

SIR,—Your correspondent, "J. R.," in referring to the coal mines of Cape Breton, says "the water seems to be the great thing to be encountered." This may be the case in the Sydney Mine, where the work is carried under the sea, and the dip of the seam is 1 in 3, but I think I may safely assert that it is not so in the inland portion of the Glace Bay district, traversed by the Glasgow and Cape Breton Railway, to which attention was called in a recent number of your Journal, where the dip is only I in 10. I visited this district last year, and at none of the collieries at work there did I observe indications of any great quantity of water. I went down the slope of the Block House Mine 1600 ft. to look at a little steam forcing-pump-which was clearing the whole mine of water with a 6-inch suction, which was clearing the whole mine of water with a 6-inch suction, pipe; and in the big pit of the Lorway Company, to which your correspondent refers as situated one mile from the Reserve, the water at 53 ft. was only 800 gallons an hour, and at 81 ft. 1700 gallons. This would be thought nothing of in England, being, I am told, fre-

This would be thought nothing quently as much per minute, described the mines of which your correspondent speaks, another company, the Emery, is being formed in London, to work the area between the Lorway and the Reserve. These three companies will be the first on the proposed line to Louisbourg, whence a large export trade may be expected, the harbour being free from ice throughout the entire winter.

T. F.

MINERAL WEALTH OF QUEENSLAND, AND MR. ANTHONY TROLLOPE.

SIR,—Great annoyance has been expressed here at the untruthful strictures of Mr. Trollope upon the mining, farming, and other producing interests of Queensland, and equally great surprise has been felt in this colony at the ready credence which has been accorded in England to the views of that gentleman, who cannot possibly know anything of the mineral lodes of Queensland, or, indeed, of any other country, I should fancy.

Leaving our farmers to speak for themselves (as they have already done rather freely as regards Mr. Trollope), I beg, as an old colonist, and well up in mineral matters, to set another view of the case before the English public. So far from being "exhausted," as Mr. Trollope says it is, our yield of gold has but lately commenced, and the earth is but little more than scratched as yet. Our first year of export was 1868, and we send to England yearly half a million of gold, the result of the labour of 3500 adult male diggers, or about 1501 a year each, an average which the world cannot parallel, and, being from rich matrix and not alluvial, the supply is practically inexhaustible.

For our copper, we have only one mine as yet in full work, and

For our copper, we have only one mine as yet in full work, and that one yields nearly a quarter of a million in pure copper yearly, and pays an annual dividend of eighty per cent. I allude to the Peak Downs Mine. This does not look like "exhaustion," does it? The

Downs Mine. This does not look like "exhaustion," does it? The other copper mine fully opened as yet—the Mount Perry—has, at an outlay of 18,000%, exposed to view in its shafts and galleries 240,000% worth of rich copper ore. Not a bad investment for the money! and by way of proof of it the shares have risen from 1s, each, the original selling price, to 42s, each in consequence.

We have hundreds of copper mines equally as good, and only wanting capital to develope them; and, to crown it all, we have discovered tin ore in fabulous quantities, scattered both in thick lodes and rich alluvial beds over a space equal to an English county on our southern border. The ore varies from 72 to 92 per cent. Such inferior matters as galena, or silver-lead, are quite neglected here in the face of so many better things, and lodes of pure galena 2 ft, thick are abandoned. are abandoned

are abandoned.

We in Queensland cannot understand why capitalists in England should take the opinion of Mr. Trollope in mining matters any more than a London publisher would consult a mining captain on a forthcoming novel before bringing it before the public. The solution of the action of Mr. Trollope is simple. Queensland is ruled by a high Tory sheep-farming clique, who dread the advent of population and mining progress for political reasons. Mr. Trollope dined with much this sort of people, and he has written to suit them,

Brisbane, March 21.

N. BARTLEY,

ON WHAT DOES METALLIC MINING DEPEND FOR ITS SUCCESS GENERALLY ?-No. II.

SIR,-To decide upon the most efficient, and at the same time the ost economical, methods of developing metalliferous mines it is important to know at the outset in what group of rocks in the geo-logical classification they are situate, as important differences of frequently occur in the lodes themselves on passing from one stratum into another that it requires, in order to efficiency of develop-ment, and the observance of a proper economy in the mode of work-ing, radically different methods of procedure in the prosecution of ing, radically different methods of procedure in the prosecution of the works, both primary and progressive. If such, then, is the physical condition and variation of lodes as affected by peculiarities of the rock formation, independently of the chemical changes, and the effects of such changes upon the lodes respectively, from laws which are in constant and unvarying operation, how indispensably necessary it must be to become acquainted with the geological peculiarities categorically of the different classes of rocks in which individual mines are situate. But whilst this branch of knowledge is of vast importance in its application to mining, it is by no means sufficient to ensure success in even a majority of cases, as is evidenced by the large number of unremunerative mines in the immediate vicinity of good ones. Situate precisely in the same classes of rocks, and characterised by the same general features, yet at the same time are affected and modified by local peculiarities, minor ramifications of the great system of geology; and, therefore, something is necessary besides a general knowledge of even practice geology to guide the miner to successful issues in his individual enterprises.

I have already intimated that individual mines are largely affect.

I have already intimated that individual mines are largely affected by local influences, apart from the general geological outline. These local influences, affecting the success of mining, pertain to the intrusive rocks, and ordinary cross-courses, slides, and faults, and for aught I know, or can conceive to the contrary, the peculiarities of vein formations may be regulated by local laws also. It is, therefore, not enough that the general geological outline of a distriguished be well and satisfactorily understood, but its sectional, local lineaments should be no loss clearly comprehended and understood and that they should be such as are usually conducive to metallite ous deposits of the most approved class.

All mining districts are characterised by some special, prominent and distinguishing features, and these relate to the country rocks, lodes, cross-courses, slides, and dykes, including intrusive rocks, which have penetrated through the older formations. In respect to the country rocks, they supply the materials of which the lodes an formed, whatever their composition and character; and the size and direction of the lodes themselves are sometimes regulated by the class of rocks in which they are situated. For instance, lodes in the igneous rocks are seldom so large as those found in the stratified formations. Another feature of lodes in many districts is that the main lodes preserve a proximate parallelism to each other, and are very frequently conformable both in the direction and the degree of their dip. The peculiar features of the main lodes of almost all districts are in general at some one point or another sufficiently prewery frequently conformable both in the direction and the degree of their dip. The peculiar features of the main lodes of almost all districts are in general at some one point or another sufficiently pronounced to enable the practical miner to determine with remarkable exactitude the result of their development, prolific or otherwise, in depth; and very frequently to foretel their greater or less capacity for productiveness or permanency. The intersection of metalliferous veins by oblique and transverse slides, and cross-courses, and dykes, of what nature and kind soever, has long been justly regarded with great favour by miners generally. I mean by miners experienced in and familiar with the phenomena of the rock and vein formations, and not that class of men which are found in every new mining country, and who call themselves miners because the profession is popular, and it is convenient to do so; and not only so, but because of that profound ignorance which sees nothing—peering into the darkness, and implicitly believing that it sees all that is.

I was told a short time since by a respectable merchant of this place that whilst in conversation with a gentleman a day or two previously, who recently arrived here from the State of New York to superintend the development of mines in which he had some interest, and who probably had never seen a mine previously, he (hames the properties of the proviously was rearrived and the proviously was rearrived and the proviously, who recently arrived here from the State of New York to superintend the development of mines in which he had some interest, and who probably had never seen a mine previously, he (hames the proviously was rearrived and the proviously that it sees all that is.

to superintend the development of mines in which he had some increast, and who probably had never seen a mine previously, he (the merchant) was remarking an the nervous character of mining—mining in the true sense of the term—from the intricacies which beset especially its early stages, and the expenses incident during such stages to the acquisition of a satisfactory knowledge, even approximately, of their value. The new comer into the arena of mining replied, with all the promptitude, flippancy, and conceit of absolute ignorance, that one man could dig down into the ground as well as another. He seems to have been inspired to this effusion after witnessing the display, scientific or otherwise, of four sun-burnt miners in mining tool-ology—the whole of the force in his employ.

another. He seems to have been inspired to this effusion after witnessing the display, scientific or otherwise, of four sun-burnt miners in mining twol-ology—the whole of the force in his employ.

I have indulged in this digression, not because of its novelly as relating to mining on this coast, but because it is a fair sample of the current presumption concerning it throughout this region. The conclusion of all this is that "If ignorance be bliss, 'tis folly to be wise." To return, I was saying that the intersection of metalliferous veins by oblique and transverse slides, cross-courses, and dykes, of what nature and kind soever, has been long and justly regarded with great favour by miners generally, as necessary concomitants of all good mines. And hence their being so frequently adverted to in mining, and in mining reports, by all persons having any appreciable acquaintance with such pursuits.

A remarkably close resemblance may sometimes be observed between two districts, or two parts of the same district, in even a highly metalliferous zone, whilst at the same time a closer examination may reveal the fact that in their physiological characteristics they entirely differ from each other; and therefore, and because such altered conditions alter quality and results, it is necessary, to avoid deception and losses consequent thereon, to have recourse to more than one natural feature preliminary, and indeed progressively, prominent among which are the lodes themselves; for vain will be the fecundity of the rocks, locally considered, if no receptacles be provided for the deposition of their metalliferous products; and as it is highly probable that the process of metalliferous extraction is concontinually geoing on, it is reasonable to presume that if local fissures

rided for the deposition of their metalliferous products; and as it is highly probable that the process of metalliferous extraction is concontinually going on, it is reasonable to presume that if local fissures be wanting others more remote are had recourse to.

Passing from the consideration of the more prominent and distinguishing features of the rocks, and the veins situated therein, as to their mutual dependance on each other, and their natural adaptability to subserve the formation of metallic minerals, and the productive yield of the respective lodes, the process of their development, and the extraction of their products by skilful mining operations, merit the most serious attention. First, because the requisite mode of procedure in mining enterprises in many new districts, beyond a few generalities, may be without precedent; and, therefore, under such circumstances, if the science of practical mining—or, more properly speaking, the genius of practical mining—be absent, or ill understood, the course pursued will be dark, labyrinthian, and devious. And, secondly, because all demonstration in the exploratory parts of mining is experimental, and experiments in the solid rock are necessarily slow and expensive.

I suppose there is nothing which the practical miner has a stronger aversion to write about than practical mining, prescriptively, because of the necessary variations in its detail. There is just all the difference of the necessary variations in its detail.

toty parts of mining is experimental, and experiments in the solid rock are necessarily slow and expensive.

I suppose there is nothing which the practical miner has a stronger aversion to write about than practical mining, prescriptively, because of the necessary variations in its detail. There is just all the difference imaginable between descriptive mining and that which is purely prescriptive, as the latter to be effective must be directed to definite objects, a priori, and this cannot take place unless the objects be known, or supposed to be known. I have already intimated that knowledge to be positive in respect of such objects must be coular; and I now add that that which is deduced by inference to be of value should be by the stern process of logic, from well-known and indisputable facts; and as it is clear that ocular knowledge cannot be acquired, except to a very limited extent, but by experimentation, so also it must be admitted that inferential knowledge, to be sufficiently reliable, must be referred analogically to experience as a standard; and hence, it it almost needless to say, we are brought into juxtaposition with the first object and the first duty of legitimate practical mining. And it is this in respect of individual mining sections, or sets, to ascertain the number of lodes available from one working centre, and the relative position of these to each other, and also the number, size, composition, dip, and direction longitudionally of the slides, flookans, and cross-courses, as well as of the elvans and other intrusive rocks by which the productive veins are intersected. It is not to be supposed that a knowledge of these facts can be arrived at without a preliminary outlay; and the mode of that outlay is, according to my judgment and experience, most effective and useful when made by adit explorations—that is, with the simple proviso that the merits of the ground are sufficiently pronounced to justify the outlay.

Works conducted in this way subserve many useful purposes, not only at the ou

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much to say in this connection that the prosperity of many mines is marred, and the fate of many more sealed, by errors in this respect; therefore, the availability of the greatest number of lodes—consistent with the principles of a rigid economy—by the main or working shaft is of the utmost importance as affecting the prosperity densities.

working shaft is of the utmost importance as affecting the prosperity of mines.

If a mine consists of but one lode, the adit and shaft system of mines.

If a mine consists of but one lode, the adit and shaft system of working is preferable to any other, as the advantages under such eigenstances are only less, at the utmost, in proportion to the incent dip of the lodes, especially if the direction of the adit is towards the linear dip of the main shoot of ore in the lode; and most lodes, as is well known, are characterised by a definite lineal dip of the as is well known, are characterised by a definite lineal dip of the latter class is paramount, except where the adit is invaluable for the reception and outlet of surface water.

When the anatomy—I use the term considerately—of a mining section or set is correctly understood, and the method of proceeding with the development clearly outlined and established, the detail at once becomes paramount, and includes nineteen-twentieths of the agent's duties. An enumeration of the more prominent of these agent's duties. An enumeration of the more prominent of these agent's duties. An enumeration of the more prominent of these agent's duties. An enumeration of the more prominent of these agent's duties.

The proposition implied and correctness of such qualifications the success of mining in a very eminent degree depends.

The proposition implied in the last paragraph will form the ground-work of my next and concluding communication upon this subject.

Eliseorth, Nye County, Nevada.

CAN THE CORNISH TIN STAMPS BE IMPROVED?

CAN THE CORNISH TIN STAMPS BE IMPROVED?

SIR,—I am much obliged to you for the insertion of my letters in your valuable Journal; they bring me enquiries daily, and requests from parties for me to go to their mines, or to meet them at some appointed place, to show my models. I have had to go West again for the past week, and others are requesting me to call at mines in Devon and Cornwall, but I am compelled to go to London, and, therefore, forced to delay seeing them. I shall be in town for the next three weeks, when I shall be prepared to meet tin mine secretaries, managers, or their agents, and show them my models, when they will be able to judge for themselves as to their merits after regains four or five working, and such as I think must convince any specing our or five working, and such as I think must convince any same man that Cornish men have hitherto been stamping on the dark ide of the edge in every respect—that is, so far as stamping and

washing tin goes.

I am convinced that a stamps on my principle can be erected for I am convinced that a stamps on my principle can be erected for methird the cost of the present drudge stamps, and do one-third more work. A stamps for the present day must be made—as Cornish men should—to conform to the times and imitate railway speed. I fear it may be said it is a disgrace to them to class their stamps with that dead drudge of an animal, the donkey; but they should know the difficulty they encounter if they attempt an increase of speed. Then let them discard their drudge donkey stamps, and bring out one that imitates that useful, and far more lively, animal the barse that can be driven to suit the present age.

out one that imitates that useful, and far more lively, animal the horse, that can be driven to suit the present age.

I believe that a stamps driven faster, with a lot of more lively heads in the stamps bed or cover, and of less weight, will do a deal more work than the old donkey stamps do, as that is an odd, ugly thing, pent up in a corner, with only a maximum speed, that cannot be increased: all they can do is to get more power, and add more weight. It is precisely the old motto, "We do as our fathers did before us;" but I can accommodate them with speed any way, either with large single rows of heads working on each side of the axle in single, double, or treble rows, or with fair-sized heads run with belts, ingle, double, or treble rows, or with fair-sized heads run with belts, 150 lifts per minute. I can suit them either way, and to do a deal

They have another telling evil in the old stamps—it is not lively enough. This a ponderous ore, and slow speed stamps give it time to settle between, and it is left under the heads until it is reduced to slime so fine that it is not to be caught with the crop tin, and it goes off in the stream; a portion is caught miles below, but a great deal goes into the sea. All letters addressed to me at 36, Hydestreet, New Cross, S.E., will find me.

N. E.NNOR.

Res. New Cross, S.E., will find the.

N.B.—In my remarks on the cost of a stamps I refer to every pormexcept the heads and lifters; they cost much the same as in the

STAMPING OF CORNISH TIN ORES.

SIR, -An experiment of real interest to those interested in tir Busies took place at Wheal Lucy, near Hayle, on Thursday, when Mr. Husband's improved Pneumatic Stamps, which has been perfected during the last 18 months, was fairly tested in the presence of several mineagents and gentlemen who had attended to witness the operations. Five tons 5 cwts. of blue elvan tinstuff, of the toughest and bardest nature that could be selected in the mine, or equal in hard-

hardest nature that could be selected in the mine, or equal in hardness to any in the county, was carefully weighed out, and put into the stamps, which consists of two heads only, and in six hours this 5 tons 5 cwts. of stuff was all passed through the grates of a fair average size, being at the rate of 20 tons per 24 hours.

When it is borne in mind that from 15 cwts. to 1 ton of tinstuff perhead per day is considered in the county very satisfactory working with the ordinary stamps, the importance of this result with the two heads will be apparent to all tin miners.

The driving power was obtained from a 20-in. cylinder single rotary engine, also employed for pumping from two shafts; the whole of the work was got through without the slightest necessity for urging the fires, even with a 7-ton boiler, from which it will be seen the new stamps will be found as economical as it appeared to be efficient. The construction of it is very simple, and can be erected for the new stamps will be found as economical as it appeared to be efficient. The construction of it is very simple, and can be erected for less than one-half of the cost of the old stamps; it can also be driven forward or backward, so that it can be worked by any kind of engine. It has been working here for four weeks, without let or hindrance of any kind, and I have no doubt the results of prolonged working will prove equally satisfactory, which will effect a revolution in the stamping department of tin mining, and it cannot fail, in my opinion, to be universally adopted.

A PRACTICAL MINER.

"SCIENCE OF INVESTMENT."

Sir,-The science of investment, to be faithful and useful to the SIR.—The science of investment, to be faithful and useful to the papil, should be searching, vigilant, and comprehensive; it should embrace security with healthy gains, a total absence of feverish impalse, with, on the contrary, an accurate analysis of facts, well understood and practically digested. Then, with earnest application, the pupil may lay out his capital with certain prospects of good and reminerative interest, and without fear of deterioration of principal, In October, 1869, I called attention to the following mines:—Botallack, Carn Brea, Cook's Kitchen, Dolcoath, East Basset, Great Wheal Vor, Herodsfoot, North Roskear, South Wheal Crofty, South Prances, Spearne Moor, St. Ive's Consols, Tincroft, Trumpet Consols, West Frances, Wheal Kitty (St. Agnes), Wheal Margaret Wheal Ruller, and Wheal Grownills, and in in the stricter. wet Basset, West Frances, Wheal Kitty (St. Agnes), Wheal Margaret, Wheal Buller, and Wheal Grenville; and it is with satisfaction that I again address you in respect to these mines, as my predictions have been fully realised. Yet there are facts staring one in the face that induce me to qualify my recommendations 2½ years 460 in regard to several of these properties. In October, 1869, Botallack shares were worth 250% each, and I recommended the purchase of shares. The dividends have been 1. In the interval, and the market value of shares is 230% to 250%, and requiring negociation in realisation. This property is chiefly held

in the interval, and the market value of shares is 230% to 250%, and requiring negociation in realisation. This property is chiefly held by local capitalists. Carn Brea shares were 12% los. per 1000th part, and the price is 180%. The change of management, and a more rigorous prosecution of the workings, effected what I advanced—instead of a lumbering old calling mine, a youthful and prospectively raliable dividend property. In the case of Cook's Kitchen, shares from 13%, los have advanced to 56% each, and the prospects of the future are good. It is of the first importance to the executive of this company to have the example right and left—i.e., Dolcoath and Tincroft—to spur them on to exertion, as it is all but certain that agents who could have worked a mine for 50 years without a single dividend would never have had the courage to sink shafts and to open out sections of lodes without a "link" to show them the way to make the standard of the property the entirety was worth 33,000%; it is now selling for 125,000%. Dolcoath is now worth

400,000%, and in October, 1869, the value was 171,240%. At this price I advised purchases of shares, yet in the face of such an advance, notwithstanding dividends of 36L 5s. 6d. have only been paid in the interim, I must suggest to my friends to allow Cornish holders of

interim, I must suggest to my friends to allow Cornish holders of shares to retain them until a reaction in price transpires.

East Basset, in 1869, I thought of no value, and am still of the same opinion; calls have been made in the interval of time, and the price of shares has advanced from 1½, per 512th to 27½. Great Wheal Vor is a veteran of mighty strength; it is a source of profit to bankers, merchants, executives, and employees, and at the same time remunerates shareholders. The price of shares in October, 1869, was 14., and the value is now 11k, dividends of 9l. 4s, having been declared over the period. Herodsfoot, in 1869, sold at 43l, per share, and the price is 45l. at the present date; I advised purchases of shares, and the dividends have been l. over the two and a half years. North Roskear, in October, 1869, I advised to be wound-up; no dividend has been declared for upwards of a quarter of a century; the shareholders have had only to respond to calls, and rest their hopes on the reports of interested executives. South Crofty, which unquestionably 1 advocated, from 12l has advanced to 110l, and the shares are mostly held by Cornish adventurers. I cannot see any reason why this pro-

reports of interested executives. South Crofty, which unquestionably I advocated, from 12l. has advanced to 110l., and the shares are mostly held by Cornish adventurers. I cannot see any reason why this property should sell for 120,000l, whilst Providence, St. Ives Consols, South Caradon, Devon Great Consols, and many a valuable property, remain wholly neglected. South Frances, from 6l. has advanced to 67l. 10s. per 496th share, and West Basset from nll to 15l. per 6000th share; these two mines are still worth the attention of investors. Spearne Moor from 18l. has made no advance, yet the price is a bagatelle for the property, considering the prospects and value of machinear and plant—say, 4000l. for the entierty. Why should this property be so reduced, in face of 100,000l. for Penstruthal, or 70,000l. for a Van Consols, to say naught of 185,000l. for an East Llangynog. St. Ives Consols, from 12l. per share, has advanced to 37½l., and the prospects of the adventure justifies my drawing especial attention to its prospective merits. Tincroft is a wonder, and at the present price the shares are a sound and good investment. The mine is well handled, and its resources are being practically developed; and, from all that I can gather, there is no impediment which the energy and supervision of Capt. Teague cannot surmount in increasing the returns so as to give 100,000l. instead of 50,000l. annually. Trumpet Consols is a sound investment; it has been at work for above a quarter of a century, and is now paying 2000l. quarterly; the future is full of promise. Adjoining is a mine called Wheal Mount, the shares in which are selling at 11l. to 12l. per 1200th. The circumstances under which this property is introduced to the public lead me to anticipate a rapid advance in the price of shares, whilst the prospects are all that can be desired. All that is necessary is to open up the lodes, as their yield is already established.

West Frances from 44l. per 512th, has advanced to 37½l. per 2048th share, and, as suggested in Octo

Wheal Margaret, from 124, has risen to 2734, per share; this mine is likely to pay well at ruling quotations. Wheal Buller and Wheal Grenville were not favourites of mine in October, 1869, nor are they so to-day, therefore I do not desire to correct my opinion of their merits expressed two and a half years ago. The tables have been turned upon the London shareholders in Cornish tin mines, the shares are held by local capitalists; in fact, the absentees from the fortunate county have sold their shares; the local interests are strong, and every nerve will be strung to bolster up the several mines, so as to increase returns and gains, and thus induce Lendon capitalists to embark again. If they, however, take my advice they will allow Cornish men to possess "One and All," for who but a gambler would embark in Dolcoath, Cook's Kitchen, East Pool, South Crofty, or West Frances at ruling prices, when the "Science of Investment" points to such properties as Turkish, Egyptian, and Italian Government Bonds, the Fore-street warehouse, various banks, canal, insurance, and other joint-stock companies, fully paid-up, that pay 10 to 12½, and up to 15 per cent, interest, and with the minimum risks of loss; R. Tredding Engineer.

R. TREDINNICK,
Consulting Mining Engineer.
3, Crown-court, Threadneedle-street, London, May 15.

MARKET VALUE OF MINES.

Sir,—A letter appeared in the Supplement to last week's Journal, headed "Market Value of Mines," which appears to me to be most inconsistent. "A Miner" has probably missed his market, and wishes to depress valuable properties, for an obvious purpose. Of the eleven mines to which he limits his kind enquiries most are revived concerns, originally started and to a great extent developed, when their in ore was worth about 40. per top, but suspended owing to the low price. It appears to me that there is no class of adventure so safe to be remunerative as these with tin ore at 100'. All the mines he names, and many others, must realise at once immense profits. Prudent calculators would prefer them to the old deep mines for permanent investment. Many of the old mines are much troubled with water, and otherwise costly to work, 300 fms. below the surface of the earth, and of these many have not long recommenced paying dividends. I think that comment is required on these facts. They certainly speak for themselves, and so will the mines by their results before this year is over. The wonder is that of the eleven mines in question some are selling as low as 6000'., 8000'., 15,000'., and 20,000'.

MINING IN IRETAND THE GLANDORE MINE

MINING IN IRELAND-THE GLANDORE MINE. MINING IN IRELAND—THE GLANDORE MINE.

SIR,—The person signing himself "Correspondent" makes some very erroneous assertions. As to it not being a place for copper, people making such statements ought to know well what they are talking about. The strata are congenial for that metal, and rich copper is there, and it is richest at the lowest point reached, and can be traced for 140 or 150 yards. Old Mr. Tonkin's opinion was that copper would be found in large quantities, and he hoped toliveto see it worked for copper. There is abundance of manganese of excellent quality, and there is no falling off either in quality or quantity, but is waiting for proper appliances for getting and dressing. There is no pumping power but hand, and no dressing power but hand. The ore is better at the bottom than it was at the upper part. What has been sold has been dressed by hand; it fetched 58s. a ton in January, 1871. The market price of it is double what it was then. The directors undertook and are bound (if not legally, in homour) to provide pumping and dressing machinery, which is absolutely necessary before the mine can be worked.

GLANDORE.

MINING IN IRELAND-THE GLANDORE MINE.

MINING IN IRELAND—THE GLANDORE MINE.

Sir.,—I have noticed for several weeks past remarks from "Your Correspondent," and from Mr. Tonkin, respecting the Glandore Mine, "Your Correspondent" appearing to think that the representations made about the mine are, to say the least, extravagant, and Mr. Tonkin contending that, if not an El Dorado, it is a close resemblance to it.

As I happened to inspect the property since it passed from the possession of the former proprietor, I may be allowed to contribute my mite to the discussion. When I met Mr. Tonkin on the mine he appeared exceedingly sanguine, both as to present prospects and anticipated results—much more sanguine than I felt after my inspection. Still, I thought the property afforded a fair field for speculation, not so much on the ground of copper ore having been discovered as from the fact that a quantity of iron ore was laid open, and that the sett contained such a large area of unwrought ground, from which good results in the shape of manganese and from high the fairly looked for. The iron ore was represented to me to contain a certain percentage of metal, and to be valued for a certain sum of money per ton. I doubted both the one and the other. But I recommended a sam of money to be given for half the mine, contingent on those results being realised, but either the money I named was considered too small, or the results unattainable, or from some other cause, no arrangement was made, and even information I wanted was refused. As regards the copper ore, some large detached rocks were to be seen, containing some rich copper; but the lode could not be seen. I gather from Mr. Tonkin's letters that the lode has since been discovered and sunk on; and, notwithstanding the opinion of "Your Correspondent," I think it quite possible copper ore may be met with, and in paying quantities. Still, if the iron ore contains 64 to 70 per cent. of bron, and 4 to 6 per cent. of manganese, I should prefer working it to exploring for copper ore.—Baltima House, Kullaloe, Irelan

of iron, and 4 to 6 per cent. of manganese, I should pref for copper ore.—Ballina House, Killaloe, Ireland, May 8.

MINING IN IRELAND—THE GLANDORE MINE.

MINING IN IRELAND—THE GLANDORE MINE.

SIR,—I did not intend to again trouble you with any further remarks upon "Your correspondent's" fallacious statements, considering I had sufficiently refuted them, but as he has had the hardihood to repeat some of them in the Supplement of the Mining Journal of May 4, and appears to be like the man designated by a well-known author as the man who "being convinced against his will, remains of the same opinion still." The first question he now puts is—How many tons of copper ore were shipped, and what its value per ton? As it is no part of my duty to give such information to a stranger, much less to an anonymous correspondent, let him apply on these two points to the board of directors of the company in Manchester in his own proper name, and state that he doubts the truth of the statement that "copper ore of a rich quality" has been sold by them, being the produce of the Glandore Mine. If they consider his curiosity should be gratified let them reply to the third question. Let him also apply to the directors, and they will give him a satisfactory answer if they think proper to gratify his curiosity, not being a shareholder. To the second question, why does he limit it to 600 tons, and not allude to the 15,000 tons and upwards of manganese shipped and sold by the late Thomas Tonkin from the mine since January, 1869?

4.—It is not true the late Mr. Thomas Tonkin ceased to work the mine because the ores were valueless, for just prior to his decease he sold manganese at Liverpool, and sent upwards of 60 tons of iron ore to a smelting company at 22s. 6d. per ton on trial, and they then ordered 200 to 300 tons it has same price. But Mr. Tomkin's hamented decease at the time put a stop to all mining operations, which was not prior to the American War

5.—The quotation from an old author made herein applies to this "doubt" of our correspondent. I will leave the reader to judge if a lode of manganese, up-

wards of 40 ft. in breadth, and traversing a length of 1½ mile in the mining sett, and from which lode near the surface the 15,000 tons of manganese, mentioned above, were taken, can be likely to be so exhausted, as when further opened upon manganese cannot be got from it in paying quantities. The same answer will apply to "Your Correspondent's" doubts as to the unwrought upon iron ore lode of 30 ft. broad and 1½ mile in the sett.
6, and lastly.—If the Glandore Mine is not "the right district for copper ore," how is it that the Great Cappagh Copper Mine, the Ballycumnisk Copper Mine, the Skull Bay Copper Mine, and several others within a short distance from Glandore on the sea coast sent so many hundreds of tons of the richest copper ores to market, and as the Ticketing Papers from Swansea and from Liverpool prove they do?

Thomas Tonkin, Superintendent of the Mine.

Thomas Tonkin, Superintendent of the Mine.

A REAL NUISANCE,

Bir,—Persons who have travelled over the West Cornwall Railway, by Pool Station, must have observed the large heaps of sand standing close to the line. These heaps are the debris brought from the stamping-mills of Carn Brea and Tincroft Mines. The sand composing them is so fine that during every storm the particles are carried a considerable distance, and deposited all along in the fields, gardens, roads, &c., in the direction of the wind, and rendering it very troublesome to people walking in the vicinity, the particles coming in contact with the eyes. These heaps occupy many acres of ground, are of great height, and contain, perhaps, millions of tons in weight. I know that to carry on the operations the debris must be placed somewhere, but the ground of complaint against the companies is because they do not take measures to stay the nuisance, which they might easily do by placing mud or turf over the sides of the heaps, to detain the sand, except at the points where the tram wagons are now depositing the same. The residents, especially at Pool and neighbourhood, must be greatly inconvenienced by this sandfall, which enters into the houses as well as fields, &c. I am glad that I am not a resident. Hundreds of tons, I suppose, are annually so deposited, to the injury of the land as well as to persons. I do not know whether any law can be brought to bear upon the companies to compel a remedy, but whether there is or is not any legal power over them they ought, from a sense of public justice, to apply a remedy.

R. 8.

MINING IN CARDIGANSHIPP

them they ought, from a sense of public justice, to apply a remedy.

Trure, Mey 12.

MINING IN CARDIGANSHIRE.

**Sir,—On my return from the lead mines in the Devil's Bridge district, I was much pleased with the great improvement in the different parts of the Aberyst-with Lead Mine. The 36 fm, level, which I have before alluded to (Penrhew) driving west, instead of the strong lode of mundle is now almost destitute of this mineral, having given way to a splendid lode of rich silver-lead ore—just as I spoke of it in my former reports. This coming under the winze sinking from the level above will, by-and-bye, open fine stoping backs of good length, easily to be taken away. There is also a great improvement in the eastern, or Bwich Gwyn, Mine, which I consider sufficient inducement to any mining speculator throughout the kingdom. It gives one great pleasure to see those improvements upon property spoken so highly of, especially as I have from time to time, even from the commencement. I would, therefore, encourage the present shareholders (who are really fortunate in having taken up this rich property) to go on and prosper, as success is certain, so far as I am able to judge, having known the mines for nearly 30 years. Other mines in the neighbourhood are looking better all through the Ponterwyd mining district, from Plynlimmon down to the western run of this part of Cardiganshire. I hope next week to speak of some of the mines in the Elanidose district.

Rheidol Cottage, Aberystwith, May 14.

MINING ARDER LIDGER

Revision Texter TIAN, Run Artendard Consulting Engineer.

THE WADEBRIDGE DISTRICT. THE WADEBRIDGE DISTRICT.

Sir.—I am not surprised to see anything in your paper coming from Mr. Derry, but really, I did not think I should be brought on the carpet and challenged for lack of modesty for not correcting the impression conveyed to the public by a correspondent in the Journal of April 27, respecting the Payton Iron Mines. I had no other motive when writing about the Pawton Mines in July but to try to start them for the benefit of the town and vicinity of Wadebridge, not through any self-ish motive or desire, being always open to do good, whereas others at times endeavour to come in and get the full benefit of other people's talent. I am not answering Mr. Derry's letter for opening up further correspondence, but merely to correct the erroneous impression it conveys.—Wadebridge, May 15.

W. PAYNTER, Jun.

W. PAYNTER, Jun.

W. PAYNTER, Jun.

OLD TREBURGETT MINE.

Sir.—Since several of your readers have expressed surprise that none of the directors of the Old Treburgett Mine have informed them of what is going on at that mine, and its prospects, nor condescended to notice several letters which have lately appeared in the Journal of rather a personal pature, allow me to deal with the first part of the question—the second I do not think worthy of notice—and to direct the attention of slapeholders to the report of Capt. Hancock, which appeared in the Journal of May 4, which, from my personal examination of the property yesterday, I can fully support. And more, I never saw old Treburgett looking better, and believe that Capt. Hancock, with his usual caution, has undervalued it at every point. I think there is no doubt that with the price obtained for the first-class lead ore—nearly 30%, per ton—the mine is not only capable of paying its way, but of returning dividends. The monthly sales will be at once increased, as a large amount of stoping ground is now being laid open. I strongly recommend my fellow-shareholders not to be induced by interested people to part with any of their shares, but rather to take any opportunity which offers itself to increase their stake in the property, even at a good premium, and of holding the same, as I feel certain the mine will turn out a lasting success.

Truro, May 14.

BELOWDA HILL MINE.

BIR,—This mine is situate in the parish of Roche, and is in the hands of a very respectable proprietary, whose local representative and purser is Mr. Dunstan, of the Miners Bank, St. Columb. The lodes are very numerous in the sett, and the stanniferous elvan and dyke, worked on in Castle an Dinas, intersects it; but the company will, no doubt, devote their attention at present to the tin lodes, which are more to be relied on. A deep cutting intersects several of the lodes, in which a tramway is laid down, to convey the tinstuff direct to the stamps. It is said by several mine agents that the stone composing the top of Belowda Hill yields tin in paying quantities, samples from numerous points having yielded that mineral. The whole surface has been disturbed by the "old men." When the stamping-mill has been at work two or three months on the stuff we shall be better able to judge of its quality on a large scale.

TERRAS MINE, AND ITS PROSPECTS.

TERRAS MINE, AND ITS PROSPECTS.

Sir,—You gave me the privilege some months ago of expressing in the Journal my views of this mine, and of its growing prosperily. I have since inspected it several times, and have no hestation in confirming my former statements. The elvan tinstone is now more productive than ever, and as the ore in Edward's and other lodes is now accessible at the 30, and will be so at the 40 within a short time, the yield of tim will unquestionably be more than doubled after the present time. I have, therefore, the utmost confidence in urging on my fellow-shareholders the advantage of holding their shares. The mine is economically worked and managed, and will in future pay handsome dividends.

A New Director.

ROSE UNITED MINES.

SIR,—When the late companies who worked Great North Downs and Wheal Rose determined to stop those mines much regret was expressed by the miners and others, because there was a decided conviction in their minds that they ought not stop—i.e., the condition of the mines warranted a continuance of the works; Great North Downs especially, which was improving for tin at the time. I am one of the thousands who think that these mines united will pay well with tin at or near its present price, and, therefore, are much gratified to learn that a company has been organised to resume operations forthwith. Mr. Wm. Michell, of Cornbill, is the secretary; Mr. Henry Michell, of the Poldice and other mines, is the purser; and Capt. George Tremayne is the manager; all officers of established reputation, in whom cupitalists may safely confide. The landowners are Sir F. M. Williams, Bart., Mr. J. M. Williams, and others, who have granted leases upon liberal conditions. I have heard that the set called East Downs has been added to Wheal Rose, thereby giving the company a more extended length on the course of the lodes, the length now being about 1½ mile from the eastern to the western extremities. The position of these mines is too well known to require description, and their former productiveness is taken as a guarantee for future success, all of them being comparatively shallow.—Truro, May 15.

THE EMMA MINE.

THE EMMA MINE.

Sir,—Much has been said for and against this property; in my humble opinion a great deal too much, for, while I strongly depresate the efforts of some of the "bear" operators, I cannot help thinking certain other parties are equally to blame for some of the statements they have circulated. I need only refer to the following, which appeared in the Journal of April 13, on the strength of which I was induced to largely increase my stake in the concern;—"The directors will in a few days be in possession of the 183,000/, surplus reserve, which it was thought prudent to have in hand, and accordingly the dividend to be paid after May will be at the rate of 36 per cent. per annum instead of 18."

It now turns out, according to the statement of the Chairman at the meeting, that the actual cash assets at the present time are only equal to about three months dividends, and that instead of the rate being increased the average returns of ore for the past six months have been insufficient by some 7000, per month to meet the dividends already declared. I am aware there are extenuating circumstances, and that we may expect better results for the future; but, after all we have heard during the past few months, and especially the statement referred to above, one cannot help feeling a certain amount of disappointment. I also think it a great pity the directors did not boidly state at the time that the 1000 tons of ore "sold in Utah" never had any actual existence, but was a payment made by the yendors to make never had any actual existence, but was a payment made by the yendors to make directors did not boidly state at the time that the 1000 tons of ore "sold in Utah" never had any actual existence, but was a payment made by the vendors to make good their contract. I have no doubta large number of the shareholders, like myself, looked upon it as a bona fide sale.

F. T.

THE FLAGSTAFF MINE.

Sir,—My letter in the Journal of April 27, in reference to the present and prospective value of the Flagstaff Silver Mine, appears to have called forth a good deal of criticism from some of your contemporaries; and although some of them do not seem to place such a high value on it as I do, it is most gratifying to find them all characterising it as a splendid property. When I penned the remarks in question the price of the shares was about 122. los., they are now being largely sought after at 181, which would appear to be ample proof that the shares were then, and are still, very much below their real value. I have every reason to believe that the mine will turn out a second Emma, with this difference, that the capital of the one is considerably less than one-third that of the other, and besides there was more ore taken from the Emma previous to its becoming the property of the present company than would repay the entire capital of the Flagstaff twice over. While the amount raised from the Flagstaff prior to its coming into the possession of its present owners was very trifling. I again repeat that in well-informed quarters this mine is looked upon as equally valuable with the Emma. At the present price of the latter company's shares the property is worth a million and a half sterling. If, therefore, the produce of the Flagstaff should turn out to be anything like that of the Emma, the shares would be worth 50% instead of 25% or 30%. New and valuable dividend of 38 per cent. instead of 24, as at present. One most important feature of the Emma and Flagstaff Mines is this—the deeper they go the richer and more abundant the ore is proved to be.

[For remainder of Original Correspondence see to-day's Journal.]

a gre mini Staff

Aleetings of Mining Companies.

THE DEVONSHIRE GREAT CONSOLIDATED COPPER MINING COMPANY.

The annual general meeting of shareholders was held at the offices, Gresham House, on Tuesday,—
Mr. W. A. THOMAS in the chair.

Mr. Allen (the secretary) read the notice convening the meeting, and the seal of the company was attached to the minutes of the last meeting (which were taken as read).

The report of the directors (which was referred to in last week's

Journal), and the accounts were taken as read.

The CHAIRMAN referred to the improved financial position of the company. The cash-balance now amounted to 8474L, against 6000L last year; they had also paid off a debt of 1025L, so that they were 3500L better off this year than last. The remainder of the items spoke for themselves. He then read extracts from the report of Captain Richards, which stated—

spoke for themselves. He then read extracts from the report of Captain Richards, which stated—

The report of Capt. James Richards, after detailing the various works completed and in progress at the different mines, concluded by stating that—In taking a review of the foregoing report, I would desire to draw your particular attention to the following facts. It will, in the first place, be observed that the course of ore in Cole's winze, in the bottom of the 130 fm, level, east of Hitchins' shaft, on the south lode, has, as anticipated at the last annual meeting, held down to the 144, and the two drivages east and west from the bottom of this winze being in a large, strong, and profitable lode, good discoveries will still be made at and about this, the deepest productive point yet reached in this part of the mines.

At Wheal Emma, in the 216, west of Thomas's shaft, on the main lode, the present end being near the run of ore ground gone down in the 201 above, and the general appearances at the extreme point reached being of the most favourable description, an improvement, in all probability, is near at hand. The Railway shaft is already down to the 145; and in the 130, east thereof, the lode is worth 3 tons of ore per fathom, and presenting strong indications of immediate improvement; and Cory's winze, below the 115, 20 fms. in advance of this end, being down nearly 14 fms. in a good course of ore, the opening up of valuable ground in this direction may fully be relied upon, as well as in the 115 and deeper points east of the new shaft, on the same lode, where the indications are of an equally promising character. It may be well to observe, in connection with the discoveries on the new shaft, on the same lode, where the indications are of an equally promising character. It may be well to observe, in connection with the discoveries on the new south lode, that Wheal Thomas is situated only a short distance to the south, nearly opposite the present operations and immediately adjoining the Bedford United Mine; and on

no reason whatever to doubt that the developement of this lode must be attended with great success.

I would now draw your attention to the contemplated sinking of Richards's shaft at Wheal Josiah, with the prospect of meeting at a greater depth with discoveries of tin, as has been the case in so many remarkable instances throughout the adjoining county of Cornwall. In furthering this desirable object, I can only repeat that I fully coincide in the views so heidly expressed in the joint report of Capts. Josiah Thomas and Simmonds, who have recently, as you are aware, made a thorough inspection of the whole range of operations; and I believe with them that, looking at all the circumstances of the case, the experimental trial should be made, and if the workings are, as advised, deepened from the present bottom of 230 fms. to the depth of 300 fms. valuable discoveries may reasonably be looked for. I nonclusion, I have only to observe that, notwithstanding the enormous returns from former discoveries, and that the ground to the extent of nearly 40 miles has been explored in various directions underneath the surface, a vast range yet remains untified in assuring you that, if the above recommendations are approved of and carried into effect great and lasting prosperity is still before us.

Mr. Gill presumed there would be a rebate upon the item of income tax.

Mr. GILL presumed there would be a rebate upon the item of income tax.

Mr. Morns explained that the amount was paid upon the average income of
five years while the Act of Parliament required the average of three years; there
fore, they had to appeal upon the item for two years.

Mr. GILL enquired the meaning of the item of 200% cash at Tavistock?

Mr. Morns said that was supposed to be in his hands, at the bank of Mr. Gill's
father. It was originally intended for freights, and was a floating balance, sometimes less and constitute a versu.

Mr. Morris said that was supposed to be in his hands, at the bank of Mr. Gill's father. It was originally intended for freights, and was a floating balance, sometimes less and sometimes more.

Mr. Hrhehers noticed that the item of reduction works was this year 2656l., against 560M. last year.

Mr. Morris explained that that arose from the difference in the quantity of arsenic on hand.—The Chairman said the difference was represented either in cash in hand or bills.

Mr. P. Green suggested that a larger dividend than 6l. per share should be declared, seeing that more than 7000l. would be carried over.

The Chairman said that last year they were obliged to obtain accommodation occasionally, which showed that there was hardly a sufficient amount of working capital to carry on the company's affairs. He added that they had 5000l. Exchequer Bills intact for use in case of emergency.

Mr. Styan suggested that instead of declaring a dividend the amount should be set aside to carry out the works required by the Duke of Bedford.

The Chairman said in the interest of the shareholders it would be very much better to pay the dividend, and raise the capital necessary for carrying out the proposed works. The directors had given the subject the most matured considerable sto the best form it would be to bring it before the shareholders so as to make it satisfactory to all parties. Personally, he had worked at it night and day.

The report of the directors was received, the statement of accounts and balance-sheet, together with the auditors' report thereon, was received and adopted, and ordered to be entered on the minutes; and it was agreed that Capt. Richards's report be printed and circulated among the shareholders.

Upon the proposition of the Rev. J. L. Pavon, seconded by Mr. Bronley, it was agreed to place at the disposal of the directors the sum of 30 guineas for the promotion of the children employed at the mine, and for other charities.

Upon the proposition of Mr. Bronley, seconded by Mr. Neale, the sum of 400 guineas

Opiniess was voted to the directors for their services during the pass year.

Upon the proposition of Mr. Rehern, seconded by Mr. Neale, the sum of
of guineas was voted to the auditors.

The directors were re-elected, Mr. Blackwell being elected a director in the room
of Mr. Blakeway, deceased.

Messrs, J. D. Browne and C. Chatfield were re-elected auditors.

Mr. Trehers asked the aggregate amount of reserves in the different levels?

Capt. RICHARDS: 18,750 tons, or 12,000 tons less than last year. He had still very
great hopes of success, but his views upon that point he had embodied in his report.

He had no doubt whatever that if the proposed operations were carried out they
would be attended with success. He spoke as positively upon that point as a man
could upon any mining question.

Mr. PIGGOT could not understand if there were such encouraging prospects why
a larger amount of ore had not been returned during the past two years.

The Chairman said the simple answer was that as much ore had been extracted
as would pay to take away. It was no use trying to get an access of ore at a cost
which would not be remunerative; therefore, they were very glad to leave the
amount of ore to be extracted to the judgment of the agents. Personally, he was
very sorry they had been obliged to extract so much from their reserves.

Mr. BROMLEY asked to what depth they would have to sink before the tim was
reached?——Capt. EICHARDS said they already had tin in the bottom of the mine;
the present produce was about 3 lbs. per ton of stuff. There was every appearance
of beginning to come into something better. With the present price of in; 33 lbs.
per ton would be a paying quantity, provided the ground was not too hard.

The Secartary, in reply to a question, stated that since last October the price
of copper had dvanced 360, per ton.

Mr. BROMLEY asked if everything was favourable how long it would occupy in
sinking to a depth of 300 fms.?—The Chaliman said, according to the memorandum of the Duke of Bedford they were required

Mr. Morris said the present depth was 235 fathoms, and the lode there yielded about 3 lbs. of tin per ton of stuff, and the lode being 10 ft. wide. They had tin

about 3 lbs. of tin per ton of stuff, and the lode being 10 ft. wide. They had tin all over the mines, and had always had it.

Mr. Geben asked how it was as there was so much tin he had not seen any item for it in the accounts?—Capt. Richards said it was in such small quantities it would not pay the expense of reducing it to bring it to market.

An extraordinary general meeting was then held to consider the propriety of dissolving the present company, and re-constructing it under the Limited Liability Acts, and to increase the capital,

Mr. W. A. Thomas in the chair.

Mr. Allen read the notice convening the meeting.

The Chairman said the shareholders had had an opportunity of perusing the correspondence which had taken place, as well as the

perusing the correspondence which had taken place, as well as the reports of Capts. Josiah Thomas and Simmons, which had been oblig-ingly sent to the directors for the information of the shareholders. had also had the opportunity of reading Capt. Richard's observa-s thereon; and, as a consequence, they had also seen a copy of the or addressed to the Duke of Bedford's agent, in which he was tions thereon; and, as a consequence, they had also seen a copy of the letter addressed to the Duke of Bedford's agent, in which he was informed that the directors could not attempt to raise additional capital unless the Duke lent his aid in the reduction of the dues. He (the Chairman) had had great difficulty in inducing the parties to come to a conclusion, but at length Mr. Wing promised he would go and see about the matter personally, and the result had been seen. Several schemes had been considered and re-considered, but since then there had been several consultations with certain legal authorities, who had recommended a much easier plan of carrying out the rities, who had recommended a much easier plan of carrying out the

object. It was found that in consequence of certain winding-up object. It was found that in consequence of certain winding-up Acts there might be some difficulty in carrying out either of the three schemes propounded in the report. Therefore, a fourth scheme had been determined upon, by which the same object would be achieved, and one which, as a market man, he considered would be acceptable to the market. It was proposed to register the company with limited liability, in 40,000 shares of 5l. each, and to offer to the general public 9280 of the 40,000 shares at 3l, per share premium the remainder to be retardly alletted to the present share. the general public 9280 of the 40,000 shares at 36, per share premium, the remainder to be rateably allotted to the present shareholders at par—that is, with a liability of 56 each. By this arrangement each present holder of one share would be entitled to thirty shares in the new company, while the 36 premium to be paid by the public would raise sufficient capital to complete the proposed operations. No call would then be necessary, as Captains Josiah Thomas and Simmons had agreed that 30,0006 would be sufficient for developing the property.

Inomas and Simmons had agreed that 30,000? would be sufficient for developing the property.

A lengthy discussion ensued, during which several plans were suggested, which resulted in the modification of the scheme submitted by the Chairman. It was eventually unanimously agreed that the whole or so much of the Deed of Settlement should be altered or amended to enable the company to be registered under the Limited Liability Act, and that the new company be divided into 10,240 shares of 5ℓ. each, to be credited with 2s. per share paid, and to be ratably allotted among the existing shareholders.

Resolutions were the nearest approaches the discussion of the same paid.

Resolutions were then passed empowering the directors to carry out these resolutions, and to retain such solicitor and counsel as they may deem advisable, and that the present directors be the first directors of the new company.

Unanimous votes of thanks were passed to the Chairman and secretary, which terminated the proceedings.

EAST POOL MINING COMPANY.

EAST POOL MINING COMPANY.

At the meeting of adventurers, held at the mine, on Monday, the accounts for February and March showed a profit of 2496. 2s. 11d. A dividend of 1600%. (5s. per share) was declared, and the balance of 244. 19s. 9d. carried to credit of next account. The committee were pleased to be able to report the realisation of the hopes expressed by them to the adventurers at the account meeting, held on March 11, as appeared by the statement submitted, and which not only enabled them to pay a dividend of 5s. per share, but also to reduce the suspense account by the sum of 900%. The following report was read to the meeting:—

May 13...-Great Lode: The 180 fathom level is driven east from the engine-shaft, is driven 1 fm. west of No. 2 winze, and is worth for tin 29%, per fathom. There are three stopes in the back of this level, worth 25%, each. There is no alteration in the 170 east or west. There are eight stopes in the back of the 170-enour east of the cross-cut, worth 20%, per fathom each; and four west, worth 16%, per fathom each. The 180 west is driven 3 fms. since last account. The winze sinking below the 180, on Pryce's lode, is communicated to this level about 4 fms. east of the ema. The winze men are now engaged in stoping the ground east and west of the winze, about 16 fathoms above the 160, where the lode is worth 18%, per fathom for copper. We have commenced a new stope in the back of the 180, west of the eross-course, worth for tin 18%, per fathom. There is in the back of the 150, on the cross-course, is communicated with the 140 cross-cut. The lode east of the cross-cut is worth 10% per fathom. The 180 is driven east of the winze, about 16 fathoms above the 160, where the lode is worth 180 per fathom the 140 cross-cut. The lode east of the cross-cut is worth 100 per fathom. The 180 is driven east of the winze over this end, sinking below the 100 fm. level, is down 9 fms., the lode containing a little tin, but poor. There are two stopes in the bottom of the 130, worth for tin and copp other, which we hope will MAYNARD, JOHN HOSKING.

HINGSTON DOWN CONSOLS MINES.

At the four-monthly meeting of shareholders, held at the offices of the company on Wednesday (Mr. W. A. Thomas in the chair), the minutes of the last meeting were read and approved; after which an account of expenditure and receipts was submitted, showing a cash balance at the bankers of 2054. 2s. 7d. Out of this sum it was proposed and carried unanimously that a dividend of 1500l. (5s. per share) should be declared, and forwarded to the shareholders forthwith. A statement of liabilities and easets was also presented show.

share) should be declared, and forwarded to the shareholders forthwith. A statement of liabilities and assets was also presented, showing, after payment of the dividend, an estimated balance in favour of the mines at the meeting in September next of 2374. 14s. 5d.

The Chairman congratulated the shareholders on the present satisfactory state of the mine, and their affairs generally, and expressed a hope that with the high price of copper, and the prospect of increased returns, this mine would again become a permanent dividend property. It is now six years since dividends ceased; in the meantime, and until within the last 12 or 18 months, heavy loses, accrued to the shareholders; and although more than once it was a matter of ser'ous consideration whether the mine should be abandoned or not, perseverance and energy prevailed, and the property, under the able management of Capt. James Richards, to whom the shareholders are much indebted, a valuable and well-managed concern. As a contrast to many (and too many) mines conducted under the Cost-book System, where dividends are paid out of money borrowed of bankers, and out of money that ought to go into the pockets of creditors, it is pleasing to refer to the statements published by this company, by which it will be seen that, saving the current expenses of the mine, there is not a debt unpaid; and that the actual money out of which the dividend is paid is standing to the shareholders' credit at the company's bankers.—Capt. James Richards was present, and replied to the many questions put to him as to the present and future prospects of the adventure. A well-deserved complement was paid to him, and the management generally, by a gentleman present; and altogether the business of the meeting passed off in a most pleasant and satisfactory manner. Captain Richards said that the ores to be sold this month are expected to realise considerably over the estimate, as the computed quantity will probably weigh over the stated 190 tons.—A vote of thanks to the Chairman terminate

WICKLOW COPPER MINE COMPANY.

The half-yearly general meeting of shareholders was held in Dublin May 11, Mr. OCTAVIUS O'BRIEN in the chair.

Mr. Kildahl. (the secretary) read the notice convening the meeting, and the directors' report and statement of accounts were taken

as read.

The CHAIRMAN in moving the reception and adoption of the report and accounts, stated that since the last meeting the price of pyrites had risen from 14s. to 18s. a ton; but few of the sales effected at the higher price came into the present accounts. The total profits resulting from the working of the mine for the year 1871 amounted the 2055, while, as compared with that profit for twelve months, he had the placement of presenting in the present account a profit of at the higher price came into the present accounts. The total profits resulting from the working of the mine for the year 1871 amounted the 2055/. while, as compared with that profit for twelve months, he had the pleasure of presenting in the present account a profit of 2134/. for the six months. In consequence of the change which took place in the market from the introduction of Spanish ore the company had been obliged to introduce a system of selection of their ore for the purpose of keeping up their position in the market. The ore remaining after selection is utilised by the company manufacturing from it themselves. The business in iron ore was in as flourishing a condition as eculd be expected; there is an eager market for this species of produce, and the profit arising was very considerable, amounting to so much as cent. per cent. As regarded the manufacturing department, the directors do not consider it prudent to pursue the retail branch of it, but as regarded the wholesale manufactures, they though that branch would turn out to be valuable, and do not, therefore, propose to abandon altogether the wholesale manufacture of manures. Turning to the material and important manufacture of the company—that of salt-cake and bleaching powder, which had been in progress from January—he was able to say these were in a very satisfactory condition, these products inding an easy market at remunerative prices. Looking to the late period at which this manufacture was taken up by the company, it would not be prudent at present to enter at length upon the details of it. Buffice it to say that if the works were trebled in extent a market would be had without difficulty for all they would be able to produce in this category. The only matter of embarrassment to the company in the entire return was one which affected other enterprises as well as theirs—that was the labour question, with respect to which the company had been put to considerable expense. The Chairman then referred to the harbour of Arklow, the property of the c

the company were models, and most expensively got up. The statement Chairman at the last and previous meetings would lead them to believe the approaching paradise, but it turned out now that they found themselves in a After complaining of the Stock Exchange, he criticised the manner in whe elections to the directorate were conducted, and concluded by moving that mittee of the shareholders be appointed to examine the mine, plant, &c., at the statement of accounts as submitted, and to report on the same to an admeeting of the shareholders, and that the report now presented be sent by reconsideration.

econsideration.

Mr. D'ABCY seconded, and Mr. Molloy supported, the amend
Mr. Lewis had read the report and accounts in "disgust and

Mr. Lewis had read the report and accounts in "disgust and anger," and spix accordingly.

The CHAIRMAN could not hear Alderman Tarpey's observations without reping; he explained the alleged want of detail in part of the accounts by stating the these items could not have been imported into figures of a distinct period. He is sisted on the satisfactory manner in which, having regard to economy and safet, the manufacturing buildings of the company had been controlled, stating that the same locality Mesars. Goulding and Mooney's establishment would cost, a stead of 25,000t., at least 70,000t.

Alderman Tarpex being called upon to withdraw personal expressions he had used, withdrew them; and, his amendment having been lost on the division if shareholders, representing 437 shares, voting for it, and 19 shareholders, representing 437 shares, voting for each control of the company and majority checked the process of public investigation into the affairs of the company.

The CHAIRMAN said the directors were perfectly willing to hold these meeting in any public arena which might be fixed on. The reports, returns, and account of the company, and any other document relating to its working which as holder might at any time wish to see, were always open to his inspection. Ast was there was every week a return of the working results open to the examination of every shareholders.

The proceedings terminated with the usual complimentary vote of thanks to the Chairman and directors.

[For remainder of Meetings see to-day's Journal.]

Roual School of Mines, Germun Street.

[FROM NOTES BY OUR OWN REPORTER.]

LECTURE XXXVII.-In the last lecture I placed before you a slight Lecture XXXVII.—In the last lecture I placed before you a slight sketch of the difficulties to be encountered in making roads through and in working away lodes of a greater breadth than usual containing mineral of a soft character—so soft, in fact, as to make it impossible to open them out without great precautions, and by the use of timbering of unusual strength and dimensions. We have seen that stonework cannot be introduced into these great yielding masses; such, for instance, as those to be found in the mines of Nevada, where timbers are used of a size far beyond any we are able to introduce here. After all, it is only a modification of the stoping system, of the cross system of working pursued in the great lodes of the Schemnitz district, and not very dissimilar to that employed in the Isle of Man. In these systems a great deal of safety arises from the packing of the open spaces. In the case of the mines of Nevada, for instance, they soon found out that this is indispensable. At first they thought that the timbers would hold, but it was found necessary to supplement them by packing the refuse. In this country

in the Isle of Man. In these systems a great deal of safety rises from the packing of the open spaces. In the case of the mins of Nevada, for instance, they soon found out that this is indispensible. At first they thought that the timbers would hold, but it was found necessary to supplement them by packing the refuse. In this country some lodes are so difficult to secure that it is found necessary bring down the packing material from the surface—a system carried out with much regularity also on the Continent in some places. It was adopted as early as the middle of the last century in those Hungaria lois where there is a deteicine of substance of the last century in those Hungaria lois where there is a deteicine of substance in the substance of the work. In others, where area cuts is driven for a few tathoms into the hanging wall, and a abundre oped, a much stone will fail in as to form a self-acting quarry, a shot being only regular the stone so obtained is sent down the shaft for walling and packing below. The are cases in which a shaft has been sunk for that purpose only. For instanc, at the mines of Knockmahon, in Ireland, a perpendicular shaft intersects the wall, which is very variable in size, but at some distance it opens of the control of the stone so obtained is sent down the shaft for walling and packing.

We pass now to the working away of beds or stratified deposits. With regard to locks, we might have dwell longer on the subject, but only as to the poverty afferent considerations must be kept in view. We have, in the first place, to deal with a body of material the whole of which ought to be extracted, which is very different considerations must be kept in view. We have, in the first place, the condition as well as the condition as well as the character of the material we have to deal with the direction and management of the works, ought in the condition as well as the character of the material we have to deal with the condition as well as the character of the material we work with the condition as emeaning simply the entire mass less the small proportion which is removed in the first operation. Besides the security of the shafts, there is another reason why the ground should not be worked away in too close a vicinity to them. When the coal is removed, and the roof (generally composed of worthless shales and stone) is allowed to fall, the mass forms what is called "a goad." This territory of broken material contains many hollow spaces, which serve as reservoirs for the fire-damp, which may exude from the shales and from the coal itself. If the fire-damp, which may exude from the shales and from the coal itself. If the fire-damp, which may exude from the shales and from the coal itself. If the fire-damp, which is the fire-damp should be forced into the levels by any movement in the goaf, and come in contact with a light, an explosion would follow, which if at a locality too near the shall might cut off all the more distant workings from access to it, and so destroy every living creature in them. Although, therefore, there is a great temptation to begin it to supply the market with the coal at the earliest period, it must be resisted until the workings are well opened. In most colliery workings the whole of the cost to the obtained in a marketable condition. As in the case of building stone, that which is got out of a sufficiently large size is that which is valuable, and the remainder mere refuse, so almost in an equal degree the larger the coal the better the prices obtained. The smaller coal fetches smaller prices, and if very small gets no sale at all. The difference, probably, is that from 8s. or 10s. per ton or opwards, no sale at all. The difference, probably, is that from 8s. or 10s. per ton or opwards, no sale at all. The difference, probably, is that from 8s. or 10s. per ton or opwards, no sale at all. The difference, probably, is that from 8s. or 10s. per ton or opwards, no sale at all. The difference, probably, is that from 8s. or 10s. per ton or opwards, no sale at all. The difference, probably

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working may be varied by any of these peculiarities. Again, it is sometimes a question when two seams are placed one above the other whether that at the top of the one at the bottom shall be first worked. The plan is sometimes affected to of the one at the bottom shall be first worked. The plan is sometimes affected to of the one at the bottom shall be first worked. The plan is sometimes affected to of the one at the bottom shall be first worked. The plan is sometimes affected to of the one and an analysis of the plan is sometimes affected to of the one and an analysis of the plan is sometimes affected to a state of the plan is sometimes affected to a state of the plan is sometimes and the plan is a state of the plan is a sta

representine cutting unrough the overtop, and the larger part of the bottle the working of the mineral.

In these cases, when the whole of the mass is removed another shift is sunk at in great distance, and, the bell being secoped out until near the first one, a short level is semetimes cut between them, and thus by far the greater part of the whole deposit won. The ground thus worked in Derbyshire has a species of iron in no-dules running through it. The most remarkable bell pits in the world are those of Hungary, belonging to the tertiary strata. In these they descend from 100 ft. to 29 ft. before they begin to work out the mineral. They open out the lower sides of the shaft at an angle of 40 degrees, constantly keeping the roof at the same angle, are perfectly safe, so long as no water gets into them.

EXPLOSIVE AGENTS, AND THEIR APPLICATION.

EXPLOSIVE AGENTS, AND THEIR APPLICATION.

Mr. F. A. Abel, F. R. S., read a paper at the Institution of Civil Engineers, on Tuesday, in which he gave an account of "Explosive Agents applied to Industrial Purposes." The nature and properties of Gunpowder, and its special advantages and defects as an explosive agent for industrial purposes, were first briefly reviewed. The application of chlorate of potash to the production of mixtures more violent than Gunpowder was discussed, their general susceptibility to explosion by friction or blows was pointed out, and some comparatively safe compounds of this class, such as Horsley's powder and a substance called Tutonite, were specially noticed. The salts of an organic acid, called picric acid, now produced in large quantities by the action of nitricacid on the well-known antiseptic carbolic acid, were described asendowed with explosive properties, and as furnishing very powerful agents when mixed with chlorate of potash or saltpetre. Of these the "Poudre Picrate," or mixture of picrate of potash and chlorate of potash, was the most violent, but was far too dangerous, on account of the readiness with which it exploded by friction, to on account of the readiness with which it exploded by friction, to permit of its technical application. A mixture of picrate of ammonia and saltpetre, designated "Picric Powder" by the author, was described as certainly not more dangerous to manufacture and to use than Gunpowder; considerable quantities had been produced with the ordinary appliances of gunpowder-works, and the material had and successful employment as a violently explosive rge for shells.

Numerous other products of the action of nitric acid upon organic

Numerous other products of the action of nitric acid upon organic substances endowed with explosive properties were stated to exist, had been so that the explosive properties were stated to exist, had been so the practical application, and these two constituted at the prestant uses. Attempts were made to apply Gun-cotton immediately after its discovery in 1846, and long before its properties understood; but Nitro-glycerine, which was discovered in 1847, had continued a chemical curiosity for 16 years, its manuface and application having been developed during the last 9 years. The early history of Gun-cotton was briefly referred to, and it was shown that, even in the first days of its production and application important results were arrived at, though the too hasty attempts to utilise it led to its speedy abandonment, as a highly dancerous material, by all but the Austrians. The improvements effected by Baron Von Lenk in the application, as well as in the manufacture of Gun-cotton, which first became public in 1863, led to a resumption of the employment of this agent in England, and to its careful study by a special Government Committee and others. The dynatages of the Austrian Gun-cotton as a mining, quarrying, and engineering agent were pointed out, as also the considerable improvements in point of power, economy, safety, and convenience in 1863, led to a properties of the Austrian Gun-cotton as which had been effected by Baron Von Lenk in the application, which had been effected by Baron Von Lenk in the application, which had been effected by Baron Von Lenk in the application, which had been effected by Baron Von Lenk in the application, which had been effected by Baron Von Lenk in the application, which had been effected by Baron Von Lenk in the application, which had been effected by Baron Von Lenk in the application, which had been effected by Baron Von Lenk in the application, which had been effected by Baron Von Lenk in the application, which had been effected by Baron Von Lenk in the application and th Provements in point of power, economy, safety, and convenience in we, in facility and uniformity of production, which had been effected by the reduction of Gun-cotton fibre to a finely divided confetton, and its subsequent conversion into highly compressed homogeneous masses. The rigidity of the charges of Gun-cotton, and their consequent occasional tendency to become jammed in irregularly shaped blast holes were, however, shown to be occasional large and the precessity for strongly confining Gun-

larly shaped blast holes were, however, shown to be occasional sources of accident; and the necessity for strongly confining Guintotton in order to develope its full explosive force was a defect which existed until recently, and had, for a time, rendered the material decidedly inferior to Nitro-glycerine.

An account was next given of the successful manner in which Mr. Alfred Nobel had developed the practical application of Nitro-glycerine. His discovery that the explosion of this liquid could be brought about through the agency of a detonation, and its successful manufacture, combined to furnish the industrial world with the most powerful explosive agent hitherto susceptible of application, and which agent, from its high specific gravity and insolubility in water, presented the special advantage that it could be used in positions whence water could not be excluded. The poisonous nature of the mistance constituted an objectionable quality, and some uncertainty bitance constituted an objectionable quality, and some uncertainty casionally attended its employment, but its principal defects arose must fact of its being a liquid, and from the comparatively high merature at which it froze. The majority of the numerous fear-The lacidents which had occurred during the transport and handling of Nitro-glycerine appeared to be caused by the accidental leakage of the liquid from receptacles in which it was confined. The liability of such leakages to escape observation, and to lead to accidental explosions which would be transmitted to the confined Nitro-glycerine, and the reckless manner in which the frozen Nitro-glycerine had been found to the confined of the reckless manner in which the frozen Nitro-glycerine had been found to the confined of the reckless manner in which the frozen Nitro-glycerine had been the confined of the reckless manner in which the frozen Nitro-glycerine had been the confined of the reckless manner in which the frozen Nitro-glycerine had been the confined of the liquid the confined of the liquid the liq Quently dealt with, in consequence of its apparently inert condi-n, had been fruitful sources of disaster, which had rendered the did, in its pure condition, a very unsafe material for employment mining agent. But Mr. Nobel had succeeded in applying Nitroa mining agent. "samining agent. But Mr. Nobel had succeeded in applying Nitrogiverine in a simple manner, by which its defects, arising out of the
liquid nature of the material, were remedied. He mixed Nitro-glyerine with a porous and finely-divided silicious earth, and thus obtained a solid but plastic preparation, which could be conveniently
landled and converted into charges of suitable dimensions, susceptible of application like any other solid explosive agent, and capable
of detonation quite as readily as the pure Nitro-glycerine. This mixman alled Dynamite, and of which one or two varieties were prepared by Nobel, was stated to be one of the safest, most convenient,
and most powerful blasting and mining agents. As now manufacad most powerful blasting and mining agents. As now manufac-ined, in the form of compressed charges, it retained as much as 75 per sant of Nitro-glycerine, without exhibiting any tendency to a sepathion of the liquid during transport and storage.

Several other Nitro-glycerine preparations of more recent production were referred to, all of which might be regarded as modifications of Dynamite. In some of them, such as Horsley's miningtions of Dynamite. In some of them, such as Horsley's miningpowder, dualine and glyoxiline, solid explosive compounds, or mixtures, were employed instead of porous silica, as the absorbents of
Nitro-glycerine; in others, as in Lithofracteur, the silicious earth and
Nitro-glycerine contained in Dynamite were in part replaced by
semi-explosive substances; for example, by Gunpowder constituents.
None of these newer preparations contained so high a proportion of
Nitro-glycerine as Dynamite, and although some of them, such as
Lithofracteur, might vie with it in regard to safety, it was scarcely
possible that the substitution of other explosive substances for a proportion of Nitro-glycerine in the mixture could result in the pro-

possible that the substitution of other explosive substances for a proportion of Nitro-glycerine in the mixture could result in the production of an equally powerful explosive agent.

When it was found by recent experiments that Gun-cotton in the compressed form could be exploded by detonation like Nitro-glycerine and its preparations, that substance proved to be quite analogous to them in its behavour, though the pure Nitro-glycerine still remained somewhat the strongest explosive agent. The suddengous to them in its behavour, though the pure Nitro-glycerine still remained somewhat the strongest explosive agent. The suddenness of the explosion developed by detonation permitted of the application of compressed Gun-cotton and Nitro-glycerine preparations to purposes of destruction without any confinement, and thus operations could be expeditiously and effectually carried out with comparatively small quantities of these materials, which could only be accomplished by exorbitantly large charges of Gunpowder. The rapid demolition of military works, bridges, &c., the breaking up of boulders, large masses of rock, guns, or castings or forgings, were quoted as operations of this class.

The author pointed out some of the causes of the great difficulty experienced in arriving at anything approaching a precise estimate of the relative power and effect of different explosive agents. Taking Dynamite as a type of the practically useful Nitro-glycerine preparations, and as certainly one of the strongest, experience had shown it and compressed Gun-cotton to be about on an equality in point of power, and to exhibit, in their most advantageous applications,

of power, and to exhibit, in their most advantageous applications, a strength which was estimated at six times that of powder. The plastic nature of Dynamite, and its power of resisting penetration by moisture, gave it advantages over compressed Gun-cotton, as it could be used in wet blast-holes, and as very irregular holes, or holes terminating in fissures, could be more conveniently and heavily charged with it than with Gun-Cotton. On the other hand, the readiness with which Dynamite froze and its incrtases unless theyed. readiness with which Dynamite froze, and its inertness unless thawed or fired by special arrangements, and the unpleasant effects experi or fired by special arrangements, and the unpleasant effects experienced occasionally by those using it, were inconveniences not shared by Gun-cotton. The advantages presented by these materials, in their general application as blasting agents, were shown to consist chiefly in saving of time and labour, especially in tunnelling or in blasting in hard rock. They were also susceptible of advantageous employment as auxiliaries to Gunpowder in the rapid removal of large masses of rock, or of submerged wrecks; the violent explosive agent being first used to produce extensive rending and shattering effects, and the superior displacing effect of powder being afterwards brought to bear. It was pointed out that Gunpowder could not be satisfactorily replaced by these violent explosive agents in some kinds of work, where its comparatively gradual action was a specially valuable feature.

In conclusion, after referring to some recent interesting experiments of Dr. Sprengel, on the application of readily oxidisable and

ments of Dr. Sprengel, on the application of readily oxidisable and other powerfully oxidising liquids in the production of violently detonating mixtures, the author showed that, even in the application of gunpowder to industrial purposes, some decided advance had lately been made, for its violent explosion could be developed, like that of all other explosive mixtures and compounds, through the agency of a detonation, whereby its action might be considerably intensified, and its application to some important classes of work—e.g., in submarine operations—greatly facilitated.

GEOLOGICAL SURVEY OF OHIO.

GEOLOGICAL SURVEY OF OHIO.

There is probably nothing of greater importance to men of business connected with the development of the mining and metallurgical resources of a district than reliable data as to the geological formations met with in the locality; and as the development of these resources is of paramount necessity to commercial prosperity, the value of a systematic geological survey can scarcely be over estimated. An elaborate and very interesting Report upon the Progress of the Geological Survey of Ohio,* at present going on, has just been presented by Prof. J. S. Newberry, the chief geologist to his Excellency Rutherford B. Hayes, the Governor of the State. A brief preliminary report has previously been presented, and he now submits a resume of subsequent work. He confines himself in the first part to an outline sketch, in anticipation of sending in the first volume of the final report. During the past season four parties have been constantly in the field carrying on the work in the different districts, so that the inhabitants of no portion of the State should feel than any partiality or favouritism had been shown. Prof. Newberry divided the State into four sections; the north-eastern portion he, with Messrs. Read and Hertzer as assistants, undertook himself; while the southeastern quarter he allotted to Prof. E. B. Andrews, with Messrs. Ballantine and Gilbert as assistants; the south-western quarter to Prof. Orton, assisted by Mr. Hill; and the north-western quarter to Mr. G. K. Gilbert. The section of agricultural geology has been entrusted to Mr. Rilppart, who, as agriculturist to the survey, has collected much valuable information.

If carried to full fruition the plan of investigation adopted by Mr. Kilppart will result—firstly, in a general review of the relations of agriculture, their deterioration, renovation, &c. and, secondly, in a description of the natural soils of Ohio classified by districts and properties; an enquiry into their sources of fertility, their adaptations, their changes u

THE TECHNICALTIES OF INDUSTRY AND COMMERCE.—The utility and completeness of the now well-known triglott Technological Dictionary of Drs. Rumpf, Mothes, and Unverzagt have been several times referred to in the *Mining Journal*, and it cannot be doubted that it has been well described as a masterpiece of lexicography, for it embraces almost every term employed in the arts and sciences, architecture, civil engineering, mechanics, machine making, shipbuilding and navigation, metallurgy, mining and smelting, artillery, mathematics, physics, chemistry, mineralogy, &c., and guaranteed the accuracy of the translations by enlisting the co-peration of such men as Althans, Hartmann, Oppermann, Sandberger, Schonfelder, and Wedding in the editorship; but the price of the Dictionary (although small, considering the enormous amount of labour and expedienvolved in its production) has tended to keep it beyond the reach of a very large number who would gladly avail themselves of the assistance of such a work. To remedy this inconvenience, Mr. Reidel, the publisher of the large dictionary, has undertaken the issue of a very useful abridgement at a somewhat lower price. In the abridgement, terms which appertain more to science than to practice have been omitted, as well as such words as are used in special departments rather than in the general concerns of business; but the terms employed by metallurgists have been replaced by a vast number of mercantile expressions (which are not found in the large dictionary), and the names of all articles which are mentioned in the Custom House tariffs. It is distinctly stated that the abridgement is not intended as a substitute.

""Pocket Dictionary of Technical Terms used in the Arts and Manufactures." it embraces almost every term employed in the arts and sciences " "Pocket Dictionary of Technical Terms used in the Arts and Manufactures.

Three volumes. London: Trübner and Co., Paternoster-row.

for the original work, but that the Pocket Dictionary will unquestionably be a well-come travelling companion to the merchant and manufacturer, as it contains precisely those expressions which cannot be dispensed with in active business pursuits, and which, nevertheless, are not to be found in other dictionaries. From the test we have been able to apply, the rendering of the words is at once concise and accurate, so that there need be no hesitation in placing the fullest confidence in the

FOREIGN MINING AND METALLURGY.

The upward tendency in the French iron trade has not yet reached its full development. Thus, merchants' iron has been carried in the Nord to 10l. 8s. per ton. In Champagne coke-made iron has been dealt in at 10l. 16s. per ton, while charcoal-made iron has attained a quotation of 12l. per ton. The scale between the various classes of merchants' iron is being extended. This scale, fixed at 8s. per ton more than ten years since, now amounts to 16s. per ton; and this is attributable, not to any fall in lower numbers, but to a rapid advance in superior numbers. The scarcity of fine pig and the excessive demand for small irons explain these circumstances. Irrespective of any special circumstances which may be now prevailing, the scale of 16s. per ton represents better the differences resulting from difficult as in the production and the quality of the raw material employed. special from explain these circumstances. Irrespective of any special circumstances which may be now prevailing, the scale of 16s. per ton represents better the differences resulting from difficulties in the production and the quality of the raw material employed. At a time when the rise in the price of iron is more than proportioned to the rise in the price of labour and raw materials, and when, consequently, producers are better remunerated for their labour and enterprise, the differences of the fabrication must correspond with a more considerable scale of prices than formerly, and French forgemasters may be congratulated upon having returned to the more rational arrangements in force upon the subject several years since. The "Bulletin of the Committee of French Forgemasters," which may be said to represent in a somewhat official fashion the opinions of the French metallurgical interest, has just published a noticeable article on the present advance in iron. The writer arrives at the conclusion that the present rise in prices will be of only limited duration. At the same time, the article argues that the advance will be to some extent of a durable nature in France, as the cost price of iron has been profoundly modified in the Republic. The concern known as the Forges et Chantiers de la Méditerranée has been paying this month the balance of its dividend for 1871, or 2!, per share.

The advices from the Paris copper market are very favourable to holders. There has been a fresh advance of 2!, per ton in Chilian, and of 5!, per ton in English. Chilian in bars, delivered at Havre, is quoted at 104!, per ton; ditto, in ingots, at 106!, per ton; and tough English, at 105!, per ton. At Havre business in copper, which has been somewhat dull, has been revived by a sale of 10 tons, first marks, which have realised 104!, per ton, Paris conditions. At Marseilles, Spanish is quoted at 86!; and small refined ingots at 92!, per ton. There has not been any very great activity in tin at Rotterdam; Banca has made 97 fls., and d

autumn deliveries the quotation is 933 is. Upon the French market a fall of 1l. per ton is noted in Straits, while Banca has risen 2l. per ton. At Paris, Banca, delivered at Havre or Paris, has made 174l. per ton; Straits, 168l.; and English, delivered at Havre or Rouen, 167l. per ton. At Marseilles, Banca has realised 170l.; Straits, 163l. 4s.; and English and French, 166l. per ton, the whole for consumption. The German tin markets have been rather feeble. Upon the French markets there has been a fresh advance of 4s. per ton in English. French lead delivered at Paris has brought 20l. 12s. per ton; Spanish delivered at Havre, 20l. 8s.; and English, 20l. 8s. per ton. German and Belgian lead has re-appeared on the market, and has been quoted at 20l. 16s. per ton. Spanish lead has realised 11½ fls. at Rotterdam; Stolberg and Eschweiler, 12½ fls.; and German lead of various marks, 12 fls. to 12½ fls. Silesian zinc has risen 12s. per ton upon the French markets. At Paris, Silesian zinc, delivered at Havre, has realised 23l. 12s.; other good marks, delivered at Havre, 23l. 10s.; and ditto, delivered at Paris, 23l. 12s. per ton. At Marseilles the price of zinc has not experienced any variation. The German zinc markets have displayed favourable tendencies, although transactions upon them have not been very considerable.

Quotations for iron remain firm in Belgium. The demand also is active, but the upward movement is less decided. Refining ping lead in the series of the series of the series of the price of zinc particles in easily at 4l. 12s. per ton, and ordinary refunity.

Quotations for iron remain firm in Belgium. The demand also is active, but the upward movement is less decided. Refining pig, hard iron, is dealt in easily at 41.12s. per ton, and ordinary refining pig, at 41.4s. per ton; casting pig is established solidly at 61. per ton. Merchants' iron is quoted at about 91.12s. per ton; sheets are obtained with difficulty at 121. per ton. As regards rails, a price of 101.8s. per ton has become general; a further advance in prices is still talked of, but it does not assume the form of a direct demand for higher rates, but rather of modifications in specifications, which would represent an advantage to manufacturers of 16s. to 11. per for higher rates, but rather of modifications in specifications, which would represent an advantage to manufacturers of 16s. to 1l. per ton. Such a policy as this seems a very doubtful one. Old rails continue in considerable request in Belgium; all available supplies are taken off at prices ranging between 7l. and 7l. 6s. per ton. Speculation has, however, something to do with these rates. Arrangements are being concluded at the prices indicated for deliveries to be made in the course of 1873; it is always to America that the large supplies which are being laid in are to be forwarded. On the Berlin market old rails are being dealt in at 6l. 16s. to 6l. 18s. 6d. per ton. Refining pig is dealt in at 6l. per ton at the works. M. Philippart, engineer, of Seraing, has been giving explanations at a meeting of the Liége Society of Civil Engineers on the Danks' puddling process. M. Philippart considers that the new process is a great step gained in connection with metallurgical industry. The Bleyberg-es-Montzen Mines and Foundries Company will pay, June 1, a dividend for 1871, or 2l. 8s. per share.

The price of coal is maintained in Belgium without any sensible variation. The sale is well sustained, and deliveries are made with regularity. Labour becomes more and more scarce, so that coal-owners experience some difficulty in maintaining the production on a level with the orders received, notwithstanding that they have fellen of the company extent of late. Freights are advancing the they have

owners experience some difficulty in maintaining the production on a level with the orders received, notwithstanding that they have fallen off to some extent of late. Freights are advancing; the rate from Charleroi to Paris has risen to 8s. 10d. per ton. Coke continues excessively scarce; washed coke has made as much as 1l. 4s. per ton. The dearness of iron is leading to the completion and repair of the greatest possible number of blast-furnaces, and hence the scarcity of coke goes on increasing. The re-organisation of the network of correlation to Fesnes is exciting a good deal of attention in

of coke goes on increasing. The re-organisation of the network of canals in the East of France is exciting a good deal of attention in the industrial world; it is stated that the works which require to be carried out will involve an outlay of 2,600,000.

Advices from Essen (Prussia) state that several Belgian firms show a disposition to purchase there the coal and coke of the Ruhr basin, notwithstanding their great dearness. It seems doubtful, however, whether it will answer the purpose of Belgian industrials to go to Essen for their supplies of combustible. It must also not be forgotten that the various qualities of Prussian coal are very friable, and that a long railway journey has a great effect upon their composition. Ruhr coalowners have contracted for the delivery of their production for the whole year, and if the market is quiet for the moment this arises from the fact that there is generally little passing in coal during April, May, and June. Industrials have, forthe moment this arises from the fact that there is generally little passing in coal during April, May, and June. Industrials have, fortunately for themselves, emerged from the difficult position in which they were placed during and after the war, in consequence of the scarcity and bad state of railway plant. Stocks at the mines are now diminishing at about the same rate as complaints. In 1871 the basin of the Ruhr produced 12,532,000 tons, while in 1870 the total only amounted to 11,638,000 tons; the number of workmen employed at the mines last year was 63,043, while the corresponding number in 1870 was only 51,391. A dozen companies are now employed in making soundings at the northern limits of the basin, and a considerable number of new concessions have already been obconsiderable number of new concessions have already been oba considerable number of new concessions have already been obtained. The profits realised by coal mining companies in the Essen district have been something enormous; they ranged last year from 10 to 20 and 25 per cent. This year the dividends which will be forthcoming will, it is expected, be still more considerable.

ENGLISH CAPITAL IN OUR GRAVEL MINES.—The North America chit gravel claims, at Hepsedam (Whisky diggings), Sierra county, containing 450 acres, have been sold recently in the London market to the "North America Gold Mining Company" (Limited) for \$400,000, including \$50,000 working capital. The purchase embraces the three groupes of claims known as the North America, Niagara, and Vermont, lying contiguous in the ridge dividing the counties of Sierra and Plumas. They are well opened, and proven to be properties of great

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value. D. W. C. Morgan, a former resident and mine owner in Sierra, took possession for the new company about one month since, and is making improvements, with the view of employing 100 or 200 men another year—65 men are now engaged, and as many more will be put on in a month or two. These mines are now working profitably, and it is predicted they will prove the most extensive and remunerative of any in this section. We congratulate our English friends on the acquisition of this property, and feel certain that under the management, the returns will be fully up to their most sanguine expectations.—Scientific Press (San Francisco), April 20.

MINING IN AUSTRALASIA -- MONTHLY SUMMARY.

MINING IN AUSTRALASIA—MONTHLY SUMMARY.

The correspondent of the Times (Sydney, March 28) says:—

"The excitement with respect to gold continues to prevail, and the funds are found for carrying on large ventures, both honest and fraudulent. Our knowledge of the area of laud of a gold-bearing character continues to increase, and machinery is being established in the western gold fields at a prodictions rate. As yet, however, it is totally inadequate to the supply of auriferous stone brought to the surface, and we must have more machinery before we can report a much larger return of gold per month. Hill-end and Tambarcora, of which I have formerly spoken, form the earther of attraction at present: Hawkins Hill continuing to yield to some dozen claimholders large quantities of stone, containing 13 ozs. or 14 ozs. to the ton, and in some cases even 100 ozs. I may here remark that, under ordinary circumstances, gold mining will pay very well when the yield is from ½ oz. to ½ oz. per ton. Mining is also going on actively in the Araluen Valley and at Forbes, and also in the upper districts of the Clarence. The escorts this month are about what they were last—namely, 31,000 ozs. from the western, 5123 from the southern, and 181 from the northern gold fields. In the matter of tin we are doing great things. It is rejoicing to see the unusual demand for tin and copper in England since these metals are found in New Bouth Wales and in Queensland in very large abundance. Tin ore of great purity is found in the district of New England upon the surface of the land over a vastarea of country, and i now being gathered by hand and shipped to England. Of our supplies of copper you are already well acquainted."

THE MOONTA MINE.—The Moonta continues to hold undisputed and province of the law of the content of the content of the province of the law of the content of the

the land over a vast area of country, and i now being gathered by hand and shipped to England. Of our supplies of copper you are already well acquainted."

THE MOONTA MINE.—The Moonta continues to hold undisputed premiership amongst the mines of South Australia. During the long period of depression which oversudadowed the mineral interest, owing to the low price of produce, it was able to pay dividends with regularity, and it is hardly necessary to say that its prosperity has been vastly enhanced by the rise in the copper market. An advance from 76% to 9% a ton means an enormous increase in the profits of an undertaking yielding between 11,000 and 12,000 tons of ore in the half-year. The directors candidly confess that their financial position has been greatly improved by the changed aspect of affairs in England, and in the same breath explain that the mines are still yielding the usual supplies of ore. The holders of this magnificent property are to be congratulated upon the favourable turn taken by things mineral, not only because it ensures them larger dividends, but because it affords them the opportunity of acting generously towards those in their employ. It will be remembered to their credit that almost the first use made by them of the news of a substantial and apparently permanent advance in quotations was to increase the wages at the mines, with a view of enabling all industrious and competent workmen to curn at least 2% a week. It is one of the privileges of the position held by the Moonta Company that it is able to fix the standard of remuneration, and it satisfactory to find that it is disposed to use its power in a liberal spirit. The report and accounts of the company show that the quantity of ore raised during the pasteix months has been 9266 tons averaging 21 per cent., and 1972 tons of slimes averaging 5 per cent. making the total produce 11,220 tons. On September 20 therewere 5068 tons on hand, so that the directors during the half-year have had to daw the 16,307 tons. Of this 10,715 tons have THE MOONTA MINE.—The Moonta continues to hold undisputed

AUSTRALIAN MINES.

YUDANAMUTANA.—Mr. Martin writes "Adelaide, March 28: Hills's Lode: Since I have been in the colony I have not been able to see any more of it than the surface in consequence of the water. The only lot of ore raised from this lode has been about 70 tons, which was during my first visit to the mine, and a beautiful sample of ore it was, of fully 30 per cent. as raised. I fully expect larger quantities from this place when the pitwork is finished, which will be very shortly. This work has been delayed from the cutting of a very fine lode of ore when cutting the cistern-plat at the 50 at the back of Hills's lode, and entirely distinct from it, the men refusing to work at the bottom of the shaft while the pumps and lift's were being lowered. I have succeeded in getting the whole of the restrictions removed from the wood cutting, and now that several drays are returning from the telegraph line there will be no fear of getting in any quantity; but I have had lately some little difficulty with the carters, they having combined, and tried to take advantage of us during the searcity of drays, but they have been met at every turn meet firmly, and have had to succumb. The most fatal error made by our late superintendent was in not attending to this most important matter. We ought to have at least 5000 tons of wood on hand. I leave the eclony on April 3 by the steamer to Melbourne, and from thence take a vessel to England. I shall leave with every condidence that all will go on in future satisfactorily—in fact, I do not see how it can be otherwise." Capt. Terrell reports—"Blimman Mine, March 25: The end driving north of the engine-esbaft, at the 50, has turned out some good ore all the month, and the stopes have improved in richness, and are still looking very promising, but the ground is hard. I purtpose after driving a fathom or two more orese cut east and west to strike the lodes we have in No. 2 winze.—Hills's Lode: Nothing has been done here, nor shall we be able to do anything before completing the

SCOTTISH AUSTRALIAN.—The directors have advices from Sydney

SCOTTISH AUSTRALIAN.—The directors have advices from Sydney, dated March 25, with reports from the Lambton Colliery to the 21st of that month. The sales of coal for the month of February amounted to 7013 tons. The sales during the first three weeks of March amounted to about 10,000 tons.

YORKE PENINSULA.—The directors have advices from the committee at Adelaide, dated March 28, with reports from the Kurilla Mine to the 26th of that month. Captain Anthony writes—"Since my last monthly report I have driven the 15 fm. level, west of Deeble's shaft, 3 fms. 4 feet.

I have driven the 15 fm. level, west of Deeble's shaft, 3 fms. 4 feet.

to four men rusing a winze from the 20 to the 16, so as to get this part of the initiated and prepared for more vigorous working as soon as orders arrive, see this method to avoid the water at the 16, which would be very troubleso ould we sink instead of rise: 1 am getting about 20 tons of low quality ore for sal ANGLO-AUSTRALIAN.—John Raisbeck, mine agent, March 28; we the honour to report progress since the 29th ult.—No. 1 Engine-shaft East cross-cut extended 40 feet at 92 feet level, and broken into the old working in break quartz at any time: opened out chamber at 198 feet, on east side of sly East cross-cut extended 40 feet at 92 feet level, and broken into the old workings; can break quartz at any time; opened out chamber at 198 feet, or east side of shaft, 14 feet by 10 feet by 9 feet high.—No. 28 haft West: Shaft sunk 2 feet, and cut chamber on west side at 290 feet level 12 feet by 10 feet by 9 feet high; drove west 5 feet, and at present 17 feet from shaft; country easier. We tapped a strong body of water on the 26th last, and by doing so have lowered the water in south shaft about 4 feet. Winze in western cross-cut sunk 10 feet, drive 12 feet east crossing the lode; good looking stone, but no appearance of flookan as yet. South shaft, name line as No. 2 engine-shaft, drive at 110 feet level. West cross-cut extended 5 feet, cut lode, but water too strong for horse-power. This body of water I expect will be drained by the operatives in No. 2 engine-shaft in four or five days. Lobby for water for stamps, opened a cutting for 100 feet, and will have to drive about 32 feet to break into pump-shaft. Tarlings done for reserving water for battery will require an additional 2 feet to complete, and clay-faced to waterproof it.

SILVER MINING IN THE UNITED STATES.—In a recent article re-SILVER MINING IN THE UNITED STATES,—In a recent article re-lering to the state and progress of mining for the preclous metals in the Western Territory of the United States, the New York Tribuse, a correct authority as far as it goes, asys.—"Of the present magnitude of this industry few have an adequate conception; and it is manifest that it is on the point of a very considerable and permanent expansion. That our country's annual product of gold and silver will exceed \$100,000,000 within the next four years, and (if the Southern and Northern Pacific Railmoats shall meantime have been constructed) will have reached \$200,000,000 within 10 years, is hardly questionable.

FOREIGN MINES.

St. John del Rey.—Morro Velho, April 17: Morro Velho pro St. John del Rey.—Morro Velho, April 17: Morro Velho produce for March, 2534 cits., from 1650 tons ore; yield, 1.536 cits. per ton. Morro Velho cost for March, 2606.; loss for March, 1600. Morro Velho produce, eight days of April, 969 cits.; yield, 1.312 cits. per ton. Gaia cost for March, 1341; Gaia produce for March, 1341; Gaia profit graph of April, 281 cits.; yield, 1-303 cits. per ton. Water lowered in shafts, from March 16 to April 1, 11 fms. 1ft. 8 in.; from April 1 to the morning of April 16, 8 fms. 1 ft. 9 in.; lowered in 30 days, 19 fms. 3 ft. 5 in. Depth of water in shaft on April 16, 41 fms.

Don Pedro.—Telegram from Lisbon: Remittance, 19,001 cits.; produce for March, 9736 cits.; weighed to April 18, 3067 cits.

Javali.—The directors have advices from Captain Sohns, dated April 6: The dry season having set in the mill has had to be stopped. During the month 800 tons of good quality ore had been got ready for crushing, and the necessary repairs, &c., to the mill were being proceeded with, so that all would be in first-rate condition for the season (July). Two new sets of stamps had arrived at Greytown and been forwarded up to the mine, and the mill-house would be at once calarged in readiness for their reception.

Sierra A Butters.—The result of the clean-up for the month of April is as follows:—Receipts, 836 629; 3549 tons of ore were crushed during the month. Cost of mining and milling same at 83-93 per ton=\$13,947-57.

as follows:—Receipts, \$36.629; 3549 tons of ore were crushed during the month.
st of mining and milling same at \$3.93 per ton=\$13,947.57.

FLAGSTAFF (Silver).—Telegram received on Monday: "Struck rich

Sign follows:—Receipts, \$366 29; \$364 tons of ore were crushed during the month. Cost of mining and milling same at \$9.93 per ton=\$13,947.57.

FLAGSTAFF (Silver).—Telegram received on Monday: "Struck rich vein of ore in tunnel."

COLORADO TERRIBLE LODE.—The following extract is from the agent's report of this mine, dated April 19: In the first level, stope No. 4, I have let a contract to drive a small drift to follow the ore; we are in about 7 ft., showing a good vein, of 4 to 5 in. wide. In the 3d level, stope No. 2, commenced since my last report, we have about 2½ in. of rich mineral. The 3d level, stope No. 5, still varies in width; at present it averages 3 in. of moderately heavy galena ore. The 3d level north, vein of the lode west, was commenced on March 26; it is a good lode, and I expect by present appearances it will improve. The 4th level, stope No. 2 west, I expect will be worked out in aqout a week. Stulls will then be cleared down; I expect 20 tons of first-class ore from this stull. In the 4th level, stope No. 2 east, the ore is rather scattered; vein from 2 to 4 in. wide, composed of zinc, blende, brittle and ruby silver. The space for engine-room is completed, also cross-cut to engine down from tunnel. A contract for sinking a new shaft was let on March 19; we are down about 27 ft. up to this date. We are following the north wall, at about 30°. We have several veins of mineral, from ½ in. to 2 in. wide.—Produce for March: 12 tons first-class, 60 tons second-class, 90 tons third-class. SAN PEDRO.—March 25: Water's Shaft: The 135 is driven 9 metres west by south from the ladder winze. We have not cut the manto (doe) as yet, but expect to meet with it daily. About 2 metres behind the end we have met with a lode of yellow bronces bearing about east and west, underlying towards the manto; it is 3 ft. wide, and produces 6 tons of 24 per cent. ore per fathom, value 1456. per fathom. When this lode drops in with the manto, which, from present appearances, will be a little below the level, we may expect

after I have seen some precipitation works in operation. The property is good, and worthy of all further outlay of cupital. The present returns of ore are over 120 ton per month."

CHONTALES.—The directors have received advices from Mr. Belt, dated April 6:—Gold returned for March, 390 ozs., from 1156 tons of ore; average produce, 6½ dwts. per ton; value, 1079. Cost for the month, 1076., which includes b6. for construction of new works. Mr. Belt reports that a great deal of the new machinery had arrived at Pital (about seven miles from the mines), and would be completed for the wet season, and he had commenced to widen the water-wheel would be completed for the wet season, and he had commenced to widen the water-course. April 5.—San Antonio Mine: The stope in the back of connection level has been stoped 38 varus; lode 3 feet wide, worth 9 dwts. of gold in the eastern part, and 5 dwts. in the western part. During the past month we have taken away 227 tons of quartz, worth 7 dwts. of gold per ton, from a stope in the back of connection level, which ran together in the last wet season.—East San Benito Mine: No. 1 stope, in the back No. 2 level, has been stoped 59 varas; lode 4 feet wide, worth 9 dwts. of gold per ton. No. 2 stope, in the back of the same level, has been stoped 30 varas on the south part of the lode, which is 2½ feet wide, worth 40 dwts. of gold per ton in the eastern part, and 10 dwts. in the western part. No. 3 stope, in the back of the same level, has been stoped 30 varas; the lode is at present 3 feet wide, worth 5 dwts. of gold per ton. Yo. 1 level has been stoped 20½ varas; the lode is at present 3 feet wide, worth 5 dwts. of gold per ton. No. 2 rise has been risen 30 varas, and communicated with the surface; the lode is 8 feet wide, and worth 9 dwts. of gold per ton. No. 1 level, has been driven on the lode 22 varas; the lode is 4 feet wide, worth 5 dwts. of gold per ton. No. 2 rise has been risen 30 varas, and communicated with the surface; the lode is 8 feet wide, worth about 5 dwts. of go CHONTALES.—The directors have received advices from Mr. Belt.

will be obtained.

BRAGANZA.—Morro Tabac, April 15: Everything is going on at the mine much the same as when last reported. The lodes are rather increased in size, and all show a little gold in the batea, but at present spare at the stamps. Jacotings still presents the same kindly lines in driving through, and some of the samples show fine particles of gold, but as yet not to value. The Easter holidays intervening, not much work has been done latterly.

BENSLERG (Lead).—J. W. Hoffman, May 11: This week we have not done much at the open-cast. We got out about 30 tons of stuff, which will have to be washed at a future time. At present all hands are engaged at the shaft, the depth of which is now 26 ft. The ground is still magnesian limestone, but we may now expect a change. On Saturday afternoon, in blasting rock at the bottom of the shaft, we struck upon grauwacke, and a piece was brought out containing galena and blende. We are thus situated directly on the junction or containing the limestone and grauwacke formation, as Dr. Zimmerman, in his report of January, assumes would probably be the case. The stone which we got out shows row indications of a lode, and we shall see when we are a few feet deeper whether ie indications of a lode, and we shall see when we are a few i

January, assumes would probably be the case. The stone which we got out shows true indications of a lode, and we shall see when we are a few feet deeper whether it is of such importance as to warrant us in driving a gallery. The foundation and brickwork for the boiler is being pushed on.

MONTE ALBO.—Wm. Martin, May 1: Su Ergiolu: The new shaft has not attained the depth of 18 metres below No. 5 level; the lode is 1 metre 50 centimetres wide, producing good stones of ore. The lode in No. 5 level, north from the new shaft, yields ½ ton of ore per metre, and in the same level south is poor at present. The fourth stope in back of No. 4 level will yield ½ ton of ore per metre. We commenced on the 29th ult. to case and divide the new shaft, and are putting forth every effort to finish it by the end of the week, when we shall begin drawing stuff from the No. 4, No. 5, and No. 6 levels with the winding-engine drawing stuff from the No. 4, No. 5, and No. 6 levels with the winding-engine drawing stuff from the No. 4, No. 5, and No. 6 levels with the winding-engine drawing stuff from the No. 4, No. 5, and No. 6 levels with the winding-engine drawing stuff from the No. 4, No. 5, and No. 6 levels with the winding-engine drawing stuff from the No. 4, No. 5, and No. 6 levels with the winding-engine drawing stuff from the No. 4, No. 5, and No. 6 levels with the winding-engine drawing stuff from the No. 4, No. 5, and No. 6 levels with the winding-engine drawing stuff from the No. 4, No. 5, and No. 6 levels with the winding-engine drawing stuff from the No. 4, No. 5, and No. 6 levels with the winding-engine drawing stuff from the No. 4, No. 5, and No. 6 levels with the winding-engine drawing stuff from the No. 4, No. 5, and No. 6 levels with the winding-engine drawing stuff from the No. 6 level with the winding-engine drawing stuff from the No. 6 levels with the winding-engine drawing stuff from the No. 6 levels with the winding-engine drawing stuff from the No. 6 levels with the winding-engine drawing stuff from the No. 6 leve

of the 4th cross-cut, on the great quartz lode, is at present poor.—No.1 Levil; is the end south, resumed in the past month, we have a considerable improvement the lode now yielding 8 tons per fathom, worth 1 oz. of gold per ton, and was the lode now yielding 8 tons per fathom, worth 1 oz. of gold per ton, and was to covered on last year in No.2 level; the stope in the back of this gives 8 tons; per fathom, worth 9 dwts. per ton. The end driving south on the western part disquartz lode, in this level, 7 tons, at 7 dwts. per ton. The end south in Zero level 5 tons Per la, worth 1 oz. of gold per ton.

LUSITANIAN.—T. Chegwin, May 7: Palhal: The lode at Twion engineshalt, sinking below the 150, is worth 3 tons per fathom; it has not be taken down since our last report.—Levels on Basto's Lode: The 150 is being tended east on a lode 6 ft. wide, composed of quartz, and the same employed tended east on a lode 6 ft. wide, composed of quartz, and the same employed are are driving the 120 east of River shaft, on the caunter lode, which is sual and poor. The 150 is going west of Taylor's on a lode yielding 3/ton of one fair the state of River shaft, where it is 5 ft. wide. In the 10, east of this shaft, the lode is 8 ft. wide, composed of hard quartz, and is of the same character has 120, east of River shaft, where it is 5 ft. wide. In the 10, east of this shaft, the lode is 2 ft. wide, composed of flookan. The 90 is going east on a lode 2½t, wide, composed of soft country and flookan. The 10de in the adit, west of few shaft, is 3 in. wide, yielding stones of ore at times. The 32, on Mill lode, is being holed to Basto's lode, we mere sear of River shaft. In the 38, west of the silic lode, when not cut the branch as yet; the ground is hard. The shife lode in have started a cross-cut south in the 18, west of Perez' shaft, to at a branch sea in the 8 fm. level, about 5 metres further south than the one at present worked of martest and worth-east of Taylor's, is 1 ft. wide, composed of flookan. In have started a cross-cut sou

GENERAL RESULTS OF MINING.—A California correspondent writes

GENERAL RESULTS OF MINING.—A California correspondent write as follows, under date of April 17:—

In so extensive a field of operations as is occupied in the production of from eight to one hundred millions of bullion in coin value per annum, it is obviously impassible to note but a few of the actual results of particular enterprises. The tops stock lode is world-renowned, and has been the most productive of any hithen discovered, as official reports show. It is occupied and worked by a large number of companies, covering a linear distance of about three miles. Twenty-ke of the companies, have given to the world not less than \$130,000,000 in the past ten year, of which \$22,000,000 have been paid to stockholders as dividends. The actual invelopment and enormous sums of money were quired before reaching the point of success. It is also true that the fluctuations in the value of stock in most of them were consequent upon the "bull" and "berlights on the boards of brokers, and among the sidewalk operators. Yet their product of bullion, and present state of development, give them a high intrinsic value. The Crown Point paid four dividends of \$10 per share during the year 15%; yet in November of that year the stock fell to \$25 05. cper share, or \$30,000 for the mile. This was, in part at least, in consequence of the belief that the lode had given out; but the company persevered in going deeper, and were rewarded by striking a boundra, or immense body of richer ore than in any of the upper levels. The developments thus far in the boundra show ore "in sight," according to careful compatation, of from \$30,000,000 to \$50,000,000. In April, 1372, Crown Point sharesaid for \$1000—the equivalent of \$12,000,000 for the mine, or \$20,000 per foot. The same month was 2½ per cent. on the selling price, or \$500 per foot. The same month is estimated at \$4,000,000 for the mine, or \$20,000 per foot. The same month is estimated at \$4,000,000 for the mine, or \$20,000 per foot. The same boundrated in sight is rated as high as in the Cro

, ne. Imperial Kentuck 6,400,000 Savage Yellow Jacket Total value, April 10, 1872 Market value, January 1, 1872 \$40,518,000 15,318,000

EXTRACTION OF METALLIC ANTIMONY,—A new method of obtain ing metallic antimony from the ore is as follows: The authory is predicted in wooden vessels with hot hydrochloric acid. The authmony is predicted from the solution by means of zino or iron, and the precipitate washed, dried, and melted in a crucible under a covering of charcoal dust.

TRAMWAY ROLLING STOCK.—Instead of constructing the flanged TRAMWAY ROLLING STOCK.—Instead of constructing the finanged wheels of railway and trauway rolling stock with iron or steel tyres, Mr. J. J. TURNER, of Sailsbury-street, W. C., proposes to employ findia-rubber (valcansed or indurated), or any of the well-known substitutes for those materials, for the bearing and guiding surfaces of such wheels by surrounding their peripheries with rings, bands, or strips of either of such materials. By the substitution this more or less elastic material as a surrounding to such wheels he is enabled to dispense with the ordinary iron rails, or railway bars of railways, and to handle rails or groved bars of tramways, and to obtain the requisite amount of adhesion for transmitting the motive power and traction of the engine and greater smoothness of motion in the carriages so fitted, whilst continuous lines of framed timbers can be employed, combining the longitudinal sleeper and the rail or bearing surfaces, thus forming a cheap and secure permanent way.

MINING IN ANGLESEY.—A few months age the Panty-Gaseg Copper

MINING IN ANGLESEY. - A few months ago the Panty-Gaseg Copper MINING IN ANGLESEY.—A few months ago the Panty-Gaseg Copper Mine was started by Mr. Henry Gibson and other London gentlemen, and it is reported that very promising discoveries have already been made. Another mine, the New Parys, has now been started by a local company in the neighbourhood of Pensara, Amiweb. This mine is situated between the celeprated Parys Mountain and the Rhosmanarch, or East Parys Mine. It is distant about 1½ mile east from the former, and about I mile west from the latter. Me control to the Parys Mountain lodes are believed to run through New Parys, and the corresponding of the property of the property of the property of the lodes by means of an adit level. Some men are now sinking on one of the lodes, which highly mineralised, and looking very promising, and the greatest mining atthorities of the neighbourhood are of opinion that ore in paying quantities mass be met with in a very short time.—North Wales Chronicle.

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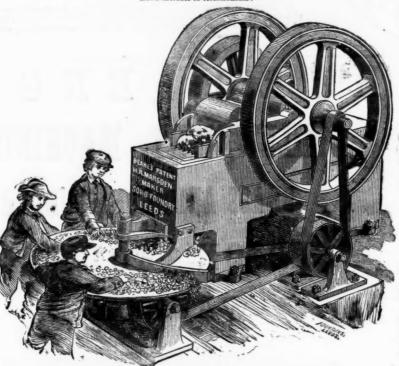
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per mile,

The Parys Mines Company, Parys Mines, near Bangor, June 6.—We have had one of your stene breakers in use during the last 12 months, and Capt. Moreom reports most favourably as to its capabilities of crushing the materials to the required size, and its great economy in doing away with manual labour.

For the Parys Mining Company, H. R. Marsden, Esq. JAMES WILLIAMS.

The Van Mining Company (Limited), Van Mines, Lianidloes, Feb. 6, 1871—Our machine, a 10 by 7, is now breaking 180 tons of stone for the crusher every 24 hours. I may say, of all our machinery, that for simplicity of construction and dispatch in their work, they are equal to anything in the kingdom, but your stone breaker surpasses them all,

H. R. Marsden, Esq., Leeds. H. R. Marsden, Esq., Leeds.

surpasses them all,

H. B. Marsden, Esq., Leeds.

Chacewater, Cornwoll, Jan. 37, 1869.—I have great pleasure in stating that the patent stone breaker I bought of you some three years ago for mines in Chill; continues to do its work well, and gives great satisfaction. It crashes the hardest copper ore stone—put it through ½ inch size by horse power—with great case. I can safely recommend it to all in want of a crusher; can be driven by steam, water, or horse power.

H. B. Marsden, Esq. JAMES PHILLIPS.

Terras Th Mining Co. (Limited), near Grampound Road, Cornwall, Jan. 1871.—Blake's patent stone crusher, supplied by you to this company, is a fascination—the wonder and admiration of the neighbourhood. Its implicitly is also surprising. Persons visiting it when not at work have been heard to remark, "This can't be all of the machine." It will crush to a small size from 8 to 0 tons of very hard and tough elvan rock per hour; takingi nto its leviathan jaws pieces of the hardess rock, weighing 200 lbs. or more, masticating the same into small bits with as much apparent case and pleasure as does a horse his mouthful of oats. On every 100 tons of the rock crushed by the machine there is a direct saving to the company of not less than 25 over the process of hand labour previously adopted by them, and the indirect saving much more, the machine being ever ready to perform the duties required of it. It breaks the stuff much smaller, and in form so fitted for the stamps, that they will purverise one-third more in a given time than when performed by hand labour.

H. R. Marsden, Esq., Leeds.

Welsh Gold Mining Company, Dolgelty.—The stone breaker does its work admirably, crushing

Welsh Gold Mining Company, Dolgelly.—The stone breaker does its work admirably, crushing the hardest stones and quarts. WM. DANIEL.

Ovoca, Ireland.—My crusher does its work most atistactorily. It will break 10 tons of the hard-st copper ore stone per hour.

WM. G. ROBERTS.

WM. G. ROBERTS.

General Frémont's Mines, California.—The 15
by 7 in. machine effects a saving of the labour of
about 30 men, or §75 per day. The high estimatien in which we hold your invention is shown by
the fact that Mr. Park has just ordered a third
machine for this estate. SILAS WILLIAMS.

Your stone breaker gives us great satisfaction.
We have broken 101 tons of Spanish pyrites with
it in seven hours.
H. R. Marsden, Esq. Weston, Bear Runcorn.

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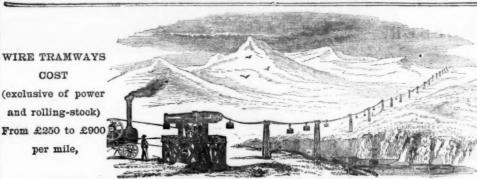
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MEADOW LANE, LEEDS, ONLY MAKER IN



And are at present successfully employed in lengths from a quarter of a mile to fourteen miles in transport of cos l, ironstone, fireclay, coke, general mining produce, beetroot, sugar-cane, &c. They are working in most difficult and mountainou districts, where any other means of transport is impossible, as well as through ordinary country.

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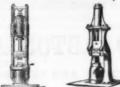
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Are PREPARED to SURVEY and ESTIMATE for LINES and EXECUTE CONTRACTS at HOME and ABROAD. They have engineers employed in constructing these lines in England, Holland, Prussia, Austria, Russia, Italy, Spain, United States, Peru, Chili, River Plate, India, Bolivia, West Indies, and Egypt. The system has been adopted by the English and Anglo-Indian Governments, the Spanish and Prussian Governments, and for many of the first mines and ironworks at home and abroad.

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Special Steam Stamp. PATENTERS AND MAKERS OF DOUBLE AND SINGLE-ACTING STEAM HAMMERS of all sizes, from 17 lbs, to I 20 tons, with Self-acting or Hand Motions, in either case giving a perfectly DEAD-BLOW, while the former may be worked by hand when desired.

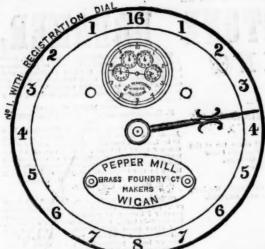
Large Hammers, with Improved Framing, in Cast or Wrought Iron. Small Hammers working up to 400 blows per minute, in some cases being worked by the foot of the smith, and not requiring any separate driver.

SPECIA STEAM STAMPS, of great importance for Smith Work, Bolt-making, Punching, Bending, &c. Hammers for Engineers, Machinists, Shipbulders, Steel Tilters, Millwrights, Coppersmiths, Railway Carriage and Wagon Guilders, Colliery Proprietors, hip Smiths, Bolt Makers, Cutiers, File Makers, Spindle and Flyer Makers, Spade Makers, Locomotive and other Wheel Makers, &e.; also for use in Repairing Smithles of Mills and Works of all kinds, for Straightening Bars, Bending Cranks, Breaking Pig-iron, &c. STEAM HAMMERS AND STEAM STAMPS MAY ALWAYS BE SEEN AT WORK.

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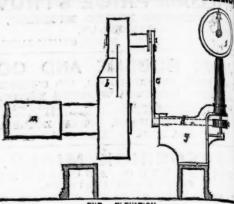


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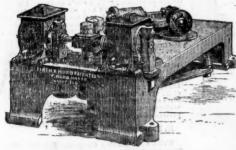
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The Pepper Mill Brass Foundry Cempany will be glad to furnish, on application, sets of drawings illustrative of the simplest and cheapest mode of attaching their indicators to engines of various constructions, either



ELEVATION One mode of attaching Indicator to horizontal engine

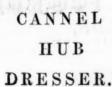
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Patent High-speed Reversible Engine, without the aid of Tappets, Cams, or Eccentrics. Cylinders either fixed or oscillating.

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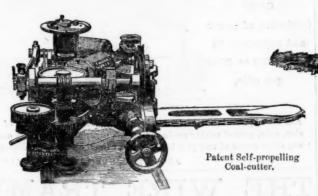
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HYDRAULIC and AIR-COMPRESSING MACHINERY. Heavy, Lig and Ornamental CASTING and Patent WORSTED MACHINERY



Patent Power, or Hand Straight Work Coal-Cutting Machine.



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Also, FIRTH'S PATENT ECONOMIC PERMANENT RAILWAY, without the aid of Pins, Bolts, or Wedges, that can be laid by an ordinary labourer with rapidity.

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IT DOES NOT GET OUT OF ORDER. SPECIALLY ADAPTED FOR SINKING AND MINING PURPOSES.

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SAVES £5 a day as compared with hand labour, independent of the enormous saving effected in the general expenses, such as PUMPING, VENTILATION, INTEREST OF CAPITAL, &c., from the fact of the "put-out" being increased four-fold.

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SAFETY; NO RISK from DANGEROUS EXPLOSION; HIGH-PRESSURE STEAM, with ECONOMY OF FUEL; perfect is of removing Saving of cost and time in repairs; portability, and, for export, great saving in freight,

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Also CHAIN CABLES, ANCHORS, and RIGGING CHAINS, IRON and STEEL SHOVELS, SPADES and FORKS, ANVILS, VICES, SCYTHES, HAY and CHAFF KNIVES, PICKS, HAMMERS, NAILS, RAILWAY and MINING TOOLS, FRYING PANS, BOWLS, LADLES, &c., &c.

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FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

EXTRACTS FROM DICKER'S "AUSTRALIAN & LONDON GAZETTE."

LONDON, SATURDAY, MAY 18, 1872.

GOLD AND THE GOLD-FIELDS.

THE reports which have been received from the various gold-fields of the colony during the past month do not contain any particularly special announcements, but they are, on the whole, very satisfactory. Alluvial mining is being steadily pursued in the different districts with advantageous results, and quartz mining is increasing in a rapid and most profitable manner on several of the older gold-fields, especially in the Bendigo or Sandhurst district. The prospects of this latter district indeed appear more and more brilliant month by month; for in addition to the continued richness of the older reefs there, the striking of a new reef or reefs is reported almost weekly. It is now undoubtedly the best quartz mining district in the world, and it also seems, from the many new dis-coveries which are made, that it has quartz reefs running in all directions through it, which will soon furnish profitable work for a vast number of miners. The splendid yield from many of its mines have led to a very healthy desire on the part of capitalists and other persons who have more or less spare cash at their disposal to invest in prospective mines in the district, and a large amount of money is now being laid out in the sinking and development of such mines. The Great Extended Hustler's Tribute Mine, which, since the reef was struck in it in October last, has yielded almost fabulous returns, still proves very rich, though the last two fortnightly returns are not so high as those of several previous fortnights were. The yield for the fortnight ending Saturday, March 23, was 2277 oz., and that for the previous fortnight 2936 oz. The Great Extended Hustler's Company are also raising good stone. Their shares have now become very valuable in the market, and have advanced during the last month at a rate which must be exceedingly pleasing to the fortunate holders of them. On the 1st of this month they were quoted at 71.5s., from which price they gradually rose until, on the 26th inst., they were sold as high as 101. 5s. The Sandhurst correspondent, in The Argus, of the 26th inst., in speaking of this company and its tribute company, says:—" Great Extended Huster's have still further advanced, and in request, but firmly held. This claim may justly be entitled the 'Investment Company' of the district-a feeling existing that money cannot be placed in any afely; and others fails, these shares are always wanted, and are considered just as safe and valuable as 10%. bank notes. They report a great improvement in the yield of amalgam (about 1000 oz.) for the past week, and will have much better returns. The fine yields of the Tribute also strengthen the company when it is known that this run is not yet touched in the parent claim which it adjoins."

From Ballarat several items of news of importance have been recorded during the past week. One of these was the good finds of gold made by the tributors of the Black Hill Company. They obtained as much as 89 oz. of gold from one bucketful of quartz stone, taken from a small flat leader; and the ground in that part of the claim which it was got from continues to give promise of yielding rich stone. Two or three new claims have already been taken up on the Black Hill reefs in consequence of the good prospects of the Black Hill Company. The improved and still improving as-pect of the New Homeward-bound claim at Scotchman's, in the Ballarat district, has also induced a number of claims to be taken up around it. It is also hoped by the shareholders of another claimthe Sovereign-that a reef which has been found in their shaft will prove to be a payable main lode, and if that be so, a great impetus will be given to quartz-mining in the district. Hitherto Ballarat has been noted for its enormous yields from alluvial mines, but many of the old residents of the district have held to the theory that it would yet prove equally rich in quartz-bearing stone, and as time progresses discoveries of reefs are made which give fair foundations for the belief that the theory will be verified in fact. The Gravel Pits Company, which was one of the first of a number recently started to work the old rich ground under the town of Ballarat East, formerly supposed to have been wholly worked out, had their first washing up last Saturday, and the result was satisfactory beyond all expectation. It was predicted that from the first three machinefuls of dirt which the company put through the puddling process, not more than 15 oz. of gold would be returned, but the handsome yield of 60 oz. 15 dwt. was obtained.

The Ovens Spectator, in a recent issue, points out that the mining resources of the colony are yet only very partially known, and still more partially developed. The journal says :- "It has been found that old reefs have been abandoned without cause, and new ones of surpassing richness are discovered almost every day. Here in this district we have a remarkable instance of the latter. Mr. Magill, a miner with a perseverance rarely to be met with, for over six years prospected the country about Hillsborough, but in vain. Reduced to his last shilling, but not despairing, he one lucky morning puts in a cut on a spot over which miners had walked a thousand times to the adjacent reefs, and here he finds, within 6 inches of the surface, a fortune. This reef is now down 120 feet. It has yielded as much as 7 oz. to the ton, and some of the richest stone we have ever seen, from the last shot in the shaft, at the depth named, is now in view at the Post-office Hotel, Beechworth. But what in the way of developing the reefs can be accomplished by a few

men in so rugged and extensive a country? Or, how can it be said that our mines are failing when there are probably not two dozen men systematically prospecting the thousands of square miles of auriferous country which lies between the Buckland and the Murray, and El Dorado and Forest-hill."

The gold-mining statistics of the colony for the quarter ending 31st December last, which were published during the past month by the Department of Mines, show that there are now 58,279 miners employed on different gold-fields, of whom 26,160 were Europeans, and 15,582 engaged in alluvial mining; and 16,450 Europeans and 87 Chinese in quartz-mining. The total mining population was divided in the various districts as follows:—Ballarat, 13,892; Beechworth, 8119; Sandhurst, 8258; Maryborough, 12,046; Castlemaine, 9137; Ararat, 3161; and Gipps Land, 3096. The approximate value of mining plant in the colony was 2,060,885%. The number of square miles of auriferous ground worked upon was 9843, divided amongst the districts as follows:—Ballarat, 1342; Beechworth, 2481; Sandhurst, 1401; Maryborough, 774; Castlemaine, 1661; Ararat, 821; and Gipps Land, 135. The quartz reefs distinctly proved to be auriferous amounted to 3130, of which 189 were credited to Ballarat, 779 to Beechworth, 710 to Sandhurst, 524 to Maryborough, 390 to Castlemaine, 73 to Ararat, and 465 to Gipps Land. The amount of gold obtained during the quarter, as estimated by the Government mining surveyors and registrars from such information as they could obtain from gold buyers and others, was 352,698 oz., of which 178,336 oz. was from the alluvial mines, and 174,362 oz. from quartz mining. Information was given respecting 227,245 tons of quartz, respecting which the surveyors and registrars had positive statistics, and it appears that 78,502 tons of the quartz mentioned were crushed in the Ballarat district, with a yield of 22,798 oz. gold, 26,260 tons in Beechworth district for a return of 13,649 oz., 38,210 in Sandhurst district for 22,333 oz., 11,661 in Maryborough district for 6503 oz., 33,974 in Castlemaine district for 15,578 oz., 26,909 in Ararat district for 21,877 oz., and 11,728 tons in Gipps Land district for 14,680 oz. The average yields in the various districts were as follows:-Ballarat, 5 dwt. 19'42 gr. per ton of quartz; Beechworth, 10 dwt. 9.50 gr.; Sandhurst, 11 dwt. 16.55 gr.; Maryborough, 11 dwt. 3'70 gr.; Castlemaine, 9 dwt. 4'10 gr.; Ararat, 16 dwt. 6'24 gr.; Gipps Land, 1 oz., 5 dwt. o'7 gr. Out of 33,691 tons of quartz tailings, cement, and mullock operated on, 5789 oz. of gold was obtained, and from 906 tons of pyrites and blanketing 2580 oz. of gold was taken. The depth at which gold is being extracted from quartz claims continue to increase. In the New North Clunes claim at Clunes it has been got at from

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EXTRACTS FROM DICKER'S AUSTRALIAN AND LONDON GAZETTE.

240 feet to 790 feet; at Learmonth's claim, Egerton, at from 400 feet to 500 feet; at the New Chum reef, Sandhurst, at 525 feet; at Hustler's reef, Sandhurst, at 600 feet; at the South Nuggetty reef, Sandhurst, at 550 feet; at the Cross reef, Pleasant Creek, at 620 feet; and at Good Hope Company, Crooked River, at 620 feet.

At a dinner given by the shareholders of the New North Clunes Company, which is one of the most rosperous companies in the colony, on the 16th March, some very interesting facts were stated respecting that company, showing the vicissitudes which it had undergone before it attained to its present prosperous condition. The health of Mr. James Esmond was proposed, and in returning thanks, Mr. Esmond said that "in July, 1851, he made the first gold discovery at Clunes; the first gold cradle was made and rocked at Clunes; and he sold the first parcel of gold obtained from Vic-torian soil." He had also "cradled the New North Clunes Company in its birth and in its infancy, but it had fled from him in its maturity, and he was now filling the obscure post of stampsman for the for which, however, he was grateful, since it enabled him to find bread for his family. The recorder of the proceedings at the dinner further states, in reference to the combined subject of Mr. Esmond and the New North Clunes Company, that on the 10th March, 1854, a commission ap-pointed to investigate claims for rewards like those of Mr. Esmond's, awarded him 1000/., which was duly paid. Still another reward was given him in consideration of his gold discovery, and this took the shape of a lease of promising quartz ground at Clunes. The New North Clunes Company was formed at the end of 1857, or the beginning of 1858, to work Esmond's lease, to which it afterwards joined much neighbouring country, and from its commencement, at the date just mentioned, till August, 1868, it was a continued drag upon its proprietary. Expecting to find payable stone at a depth of 300 feet or 400 feet, the company has been obliged to sink to a depth of nearly 1000 feet, and has now the deepest shaft in the colony. Serious blunders were made in the ordering and planning of the company's machinery in the early days, and much loss accrued from this cause. Then the reef upon which the company relied in the beginning, by and by showed symptoms of exhaustion, and one thing with another made the New North Clunes mine a source of much care to its owners for many years. But after a time things took a turn for the better. Two gold-bearing reefs were discovered in its ground, of which the company was not aware when it commenced operations, and its explorations at deep levels proved more successful than there was sufficient reason to anticipate in the beginning.

As affairs stand now, all concerned have every reason to feel highly gratified, and those who have stuck to the company all through have been amply rewarded for their constancy. The paid-up capital in the company is 18% per share, and 100% per share has already been paid in dividends, the present value of the shares being something under 120%, and its prospects, according to the views of the shareholders, brighter than ever. In illustra-tion of the uncertainty which attends the value of Victorian mining property, it may be mentioned that at one time, when 10% or 12% per share had been paid up in New North Clunes shares, they were barely saleable at 30s. each. Subsequently, in 1869, they readily fetched 200l., but in another year they were purchasable at 45%. To show about what the mine yields it may be said that for January of this year it paid 4% per share, for February 1%, and for March 4% 10s. In reflecting upon the varied career of this enterprise, it would be pleasant to know that its original projectors were sharers in its present prosperity, but this is not so, except to a limited extent. Very many of not so, except to a limited extent. Very many of the original shareholders were obliged to sell out at a great sacrifice before the dividend-paying era commenced, and, to the same extent, the present lucky shareholders in the mine are speculators who bought in at one time or another. Two years ago the company purchased two of its own shares, then worth about 156*L*, and presented them to Esmond's wife, so that the first discoverer of gold at Clunes does not now rely altogether upon his own labour for his means of living. The history of the

vicissitudes of the New North Clunes Company and its ultimate success would apply to very many of our now most prosperous colonial mines, numbers of which had to be worked for years at great expense and under considerable difficulties before they were successful enough to pay dividends.

AUSTRALIAN MINES.

Two Australian mines are just now before the public; of them, the London and St. Arnaud, for working Gold and Silver; and the other, the North Costerfield, for working Gold and Antimony. Both these properties are very extensive, and the best evidence that could be had of the good faith of the vendors is to be found in these two facts-although the property is very rich, the valuation is moderate, and the purchase-money is taken in shares. The views and plan which accompany the prospectus indicate unmistakably the extensive character of the St. Arnaud property, and certificates from Messrs. Johnson and Matthey, the well-known refiners of Hatton Garden, prove that the lodes are rich in gold and silver. The plant and machinery, indeed, require but few additions to render the mine, which is a mile in extent, one of the most productive in Australia. The Costerfield lode, which yields gold as well, is reported to be the finest Antimony lode in the world; and the ore, without any dressing whatever, finds a ready sale in this market at 15%. per tor. The marked success which has attended mining in Victoria is perhaps best expressed in the fact that the monthly dividends from quartz mines have, within two years, had an increase steadily upward from about 25,000/. per month, to the present average of from 50,000/. to 90,000/. These figures [speak for themselves. It is satisfactory to note that mines long in work hold their places amongst the more recently discovered, and the deeper the miners go, the richer, as a rule, do they find the quartz. For instance, the Hustler's Tribute Mine was sold some years since for 160l., afterwards for 900l., then for 3000l., each party in succession making large profits from the mine; and yet within three months of the last mail leaving Australia, the mine had paid over 80,000/. in dividends, out of the deepest portion yet reached. This is but one out of numerous similar instances, perhaps not quite so remarkable; many of them, however, are far on in the same direction, and quite sufficient to establish for Victorian mines, when properly worked, a general character for permanent richness.

VICTORIA WATER SUPPLY.

AWAITING the arrival of Mr. Gordon, the new engineer-inchief, the waterworks of the colony remain at a standstill. The temporary repairs to the Malmsbury reservoir have been all but completed, and pipes have been laid in the township of Castlemaine, which can be supplied from local that pathing of greater inventories the best laid. been all but completed, and pipes have been laid in the township of Castlemaine, which can be supplied from local reservoirs, but nothing of greater importance has been attempted. The Minister of Mines and Lands recently paid a visit to the works at Castlemaine, and found the Expedition Pass reservoir, which is principally relied on to furnish that town with a temporary water supply, in a rather unsatisfactory state. Filtered beds seemed to be urgently required, and likewise some means of arresting a wholesale process of silting up. The reticulation of Castlemaine was found to have been executed with defective pipes, and there was great reason to fear that there had been no previous testing of the smaller pipes. Nothing, however, will be done to the reservoir until Mr. Gordon has reported upon the works. By local effort, a water-works scheme has been carried out at Clunes. The enterprise has been managed by a commission, of which Mr. Peter Lalor is the chairman, and the works were opened about a fortnight ago. The scheme consists of a storage reservoir for two hundred million gallons at the head of the Bullarook Creek, nimeteen miles from the town; ten miles lower down a weir, which backs up some two millions and a half of gallons; an aqueduct one mile and a half long, and a pipe track of six and one-eight miles. All except the storage reservoir is finished. The capacity of the works is from two to three millions gallons per twenty-four hours. Owing to a disagreement between the borough and the commission, the townspeople do not yet participate in the benefits of the supply, and water is only laid on to the principal mines. When completed the scheme will cost from 50,000/. to 60,000/.; up to the present it has cost 35,000/.

VICTORIA-NEW LINES OF RAILWAY,

PROGRESS is being made with our railways. The North-Eastern line as far as Kilmore is ready for use, and was to have been opened on Easter Monday, but as all the rolling-stock at command will be required on that day for the traffic on the other lines, the event has been deferred. With regard to the new railways authorized by Parliament last session, it has been officially notified that tenders for the works of the first fourteen miles or thereabouts of the following lines—namely, Castlemaine to Maryborough and

Dunolly, and Ballarat to Ararat—will be called for on a bout the 30th April next. Separate tenders for the 5 fee 3 inches and 3 feet 6 inches gauges will be taken for each line. Another line, which is to be constructed by prival enterprise, is also to be undertaken. Plans and section of a railway from Portland to Coleraine, with a branch thamilton and another to Casterton, have been deposite with the clerk of the Legislative Assembly, the Board Land and Works, and at the offices of the shires am boroughs interested in the line. The railway is to be constructed on a gauge of 3 feet 6 inches, and is to be worked by rolling-stock on the Fairlie system. It is undertaken by a company, composed entirely of residents it the districts it passes through. The Government intend to give a concession of land to the company, at the rate one acre for every 2l. expended, and a proclamation habeen issued reserving from sale land to the extent of 163,392 acres. 163,392 acres.

MAIL CONTRACT-SAN FRANCISCO TO MELBOURNE

MR. Vogel, C.M.G., the representative of the New Zealand Government, and Mr. W. H. Webb, the American steamship proprietor, have been in Melbourne during the last few weeks, and after some negotiation an arrangement has been come to by which the Victorian Government will grant a subsidy towards the maintenance of a mail viã San Francisco and New Zealand. A contract has been entered into and signed, but the particulars are not to be divulged until the meeting of Parliament. It is known, however, that the American steamers are to come on direct from New Zealand to Melbourne, and the subsidy is reported to be between 15,000. and 20,000. per annum, though there is reason to believe that the amount is something very different. In recognition of the exertions Mr. Webb has made to bring about steam postal communication between the Australian colonies and California, he was entertained by the Melbourne merchants at a banquet at Scott's hotel. Mr. George Stevenson, President of the Chamber of Commerce, occupied the chair. Amongst those present was the Minister of Public Works, who, in replying to the toast of the Ministry, expressed his confident belief that the arrangements which had been entered into would meet the acceptance of the Parliament and the people, because they had been entered into in a friendly spirit, and with a sincere and anxious desire to establish the friendliest possible relations not only with New Zealand, but with the United States of America. Mr. Webb, in acknowledging the toast of his health, described the various steps which had been taken from time to time to establish a system of steam and postal communication between the two countries, and appeared, from the nature of the remarks which fell from him, to be fully aware of the importance of making Melbourne the port of departure for his steamers.

AUSTRALIAN TELEGRAPH, FROM ADELAIDE TO PORT DARWIN.

AUSTRALIAN TELEGRAPH, FROM ADELAIDE TO PORT DARWIN.

For the last two or three months the public have been greatly misled by reports as to the time when the overland telegraph wire would likely be opened. It was to have been finished in February last. Now we hear that it can scarcely be ready before the end of July. On the 16th December last there were 392 miles of uncompleted line between the northern end of section E, and a section 226 miles in length running southwards from Port Darwin. Of these 392 miles, about 140 miles, in continuation of the 226, were in the hands of two construction parties, who were going ahead at the rate of from three to four miles a week. One was to finish by the end of March, the other in June. To meet them, a third construction party had commenced to pole northwards from section E, and by the 20th December had accomplished 50 miles. This left 200 miles unaccounted for, in December, between the outmost point reached by the southern party and the Daly Waters where the second northern party and the Daly Waters where the second northern party appointed to begin at Daly Waters and work southwards, was 45 miles distant from the point where he was to begin. Wet weather had seriously delayed his teams, but it is believed he was on the ground by the end of January. If he has made fair progress he ought to have finished 20 miles by this time. Taking it for granted that the speed will be increased as the weather improves, and that the party who are to finish in March will move down to help Mr. Burton, then it is calculated that the whole of the work will be finished in July. As regards the horse-express which is to be established in the meantime over the unfinished work, there are 300 miles of country to traverse. Mr. King was to leave the Roper River before the close of February, and ought to have got his service organized by the third week in April; but to speculate when messages will come through would only mislead people. Communications from Mr. Todd, the general superintendent of telegr

The North Costerfield Gold and Antimony Mining Company. No Liability. Costerfield, near Bendigo, Victoria, Australia.

Capital 50,000%. in 50,000 Shares of 1%. each. Paid up 10s. per Share, viz.:—

20,000 Shares of 1/. each, 10s. per Share paid, = 10,000/. allotted in the Colony.

30,000 Shares of 1/. each, 10s. per Share paid, =15,000/. to be allotted in England.

50,000 Shares. 25,000% called up.

The London Agent has instructions to offer the above parcel of 30,000 Shares:—

2s. 6d. per Share to be paid on Application; 2s. 6d. on Allotment; and 5s. in Three Months after Allotment. The Balance, if required, in Calls not exceeding 1s. per Share per month.

It is estimated, however, that 10s. per Share will be quite sufficient for all purposes of the undertaking.

Directors in the Colony.

Robert Burrowes, Esq., M.L.A., Member of the Legislative Assembly for Sandhurst, Bendigo. Thomson Moore, Esq., M.L.A., Member of the Legislative Assembly for Mandurang, Bendigo.

Samuel P. Lord, Esq., J.P., Melbourne.

D. A. Osborne, Esq., Melbourne. Dr. Fitzgerald, Melbourne.

William Gardiner Sprigg, Esq., Melbourne.

Directors in England.

Geo. A. Addison, Esq., 17, Charles Street, St. James's.

W.C. L'Estrange, Esq., Queen's Hotel, Norwood, and 17, Merrion Square South, Dublin.

Henry Small, Esq., Junior Carlton Club, Pall Mall, and Buckingham.

Bankers in the Colony.

The Bank of Victoria, Collins Street, Melbourne.

Bankers in London.

The London and South Western Bank, Limited, 7, Fenchurch Street, E.C., London, and its Branches.

The Scrip, which is signed and sealed, ready for issue, is deposited meanwhile, for security, at the Bank of Victoria, 3, Threadneedle Street, London, F.C.

Secretary.

William Scott, Esq., 37, Market Square, Melbourne.

London Agent.

Thomas Dicker, Esq. (formerly Editor and Proprietor of *Dicker's Mining Record*, Melbourne.)

Offices.

4, Royal Exchange Avenue, London, E.C.

The object of this Company is to work the extensive property known as the North Costerfield Mine,

for both gold and antimony. Its area is 25 acres 2 roods and 4 perches, with a length on the course of the lode of 1613 feet.

The Mine adjoins the well-known Costerfield property. The lode runs between solid and well-defined walls, without fault or break, and bears the reputation of being the finest Antimony lode in the world.—Vide Report of J. Brache, Esq., Civil and Mining Engineer, late Superintendent of Mining Surveys to the Geological Department, Melbourne.

An inspection of the accompanying carefully executed plan will be sufficient to show the extreme value of the property.

The Report of Mr. D. L. Strong, the Government Mining Surveyor, at Heathcote, states that "the whole of the underground works now being prosecuted by the Costerfield Company are at the north end of their ground, and therefore contiguous to the North Costerfield property."

The extension of the levels made during the last three months, and drawn on the plan, shows how rapidly the Costerfield Company's works are approaching the boundary separating it from the North Costerfield Mine. In fact, at the same speed, it is a mere question of two or three months.

Thus, abutting on the North Costerfield boundary, the adjoining mine is working profitably on ore at 180 feet and 420 feet, and the lode still as well-defined and productive as ever, is followed down to 500 feet, giving stopes between these levels, which will probably occupy the North Costerfield Company for years.

With respect to the Costerfield Company's working, mining operations, owing to insufficient appliances, are conducted on a limited scale. Yet, notwithstanding, similar returns would give the North Costerfield Company from 50 to 100 per cent. upon the proposed paid-up capital.

It is intended to sink a large main shaft to cut the lode at a depth of 600 feet, and provide efficient machinery. But as the lode rises to within a few feet of the surface, a whim shaft will meanwhile be sunk to intersect the lode at 200 feet, so that ore can be raised, dressed, and shipped to England, and returns be had in the course of a few months.

The vendors sell their interest to the Company for 11,500%, viz., 20,000 shares of the Company, paid up to 10s. per share (already commuted), and 1500% cash.

This Company is registered in Melbourne under the "No Liability" clause of the "Limited Liability" Act of the Colony of Victoria, which limits the amount to be called up to 11. per Share.

Extract from Report, by J. BRACHE, Civil and Mining Engineer (late Superintendent of Mining Surveys to the Geological Department).

"The area of the lease ground is about 25½ acres, forming a parallelogram 690 feet wide (cast and west), and 1614 feet in length (north and south), with the bearing of the antimony lode as defined in the workings of the Costerfield Gold and Antimony Company's Mine. The lease adjoins that of the Costerfield Company's on the north, and is distant about 450 feet from the main shaft of the latter company.

"The mineral character of the surface is the same as

that of the celebrated Costerfield Mine. The cap of the antimony lode is distinctly defined along the surface, and some half dozen prospecting shafts have been sunk, from which both oxide and sulphate antimony ores have been obtained at various depths, from 20 to 80 feet from the surface and along the outcrop of the lode. About 100 lbs. weight of antimony ore, obtained at about 20 feet from the surface, has been forwarded as a sample to your office. The lease area secures fully the eastern underlay of the antimony lode (as defined in the Costerfield Company's Mine), over 1500 in depth, or at the rate of about 2 feet per fathom.

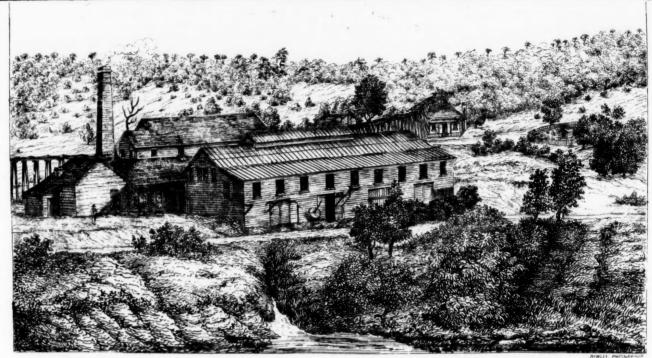
"In order to form a still better opinion as to the mineral character of the property, I availed myself of the permission to examine the surface and underground workings of the Costerfield Mine. Although my opinion had been a good one, from the periodically reported returns and profits from this mine, I had no conception of its really magnificent proportions and prospects, until I had traversed the greater portion of the mine, and examined all the faces of the lode in the north levels, more particularly in the stopes between the 320 feet and 420 feet levels. A blind shaft sunk 80 feet from the 420 feet level has proved the lode down to 500 feet, continuing the same regular underlay of about 2 feet per fathom. The workings in some of the north levels of the mine extend to within 200 feet of the southern boundary of the North Costerfield Company's lease. The lode in these levels rises with the surface of the ground towards the north into your property, and it is my belief that the apex of the lode will be found within your lease, and it is not improbable, should this be confirmed by subsequent workings, the lode will develop proportions within your lease even beyond those now met with in the Costerfield Mine. The average thickness of the antimony lode in the Costerfield Mine may be set down at no less than 3 feet. It runs between solid and well-defined walls, without fault or break, and bears the reputation of being the finest antimony lode in the world.

"This mine has yielded about 4000 tons of antimony ore, which at the average price of 15%. per ton gives 60,000/. The gold quartz crushed from the mine yielded also large returns, particulars of which I could not obtain. Out of this amount 20,200/. have been paid in dividends, besides purchase of plant and an accumulated reserve fund. The extent of the lode opened up permits of four times the number of men being employed with proportionate returns, but this could not be effected without a proportionate enlargement of shaft and machinery. The mine is welldrained, and timbered, and ventilated, and as the lode is dipping south, the North Costerfield Company's Mine will greatly profit by this drainage. It is well known that the antimony ores are more or less rich in gold and silver, but as the extraction of the gold is at present monopolized by an English company, the Costerfield Company has only realized on the average value of the antimony ores, irrespective of the per-centage of gold they contain.

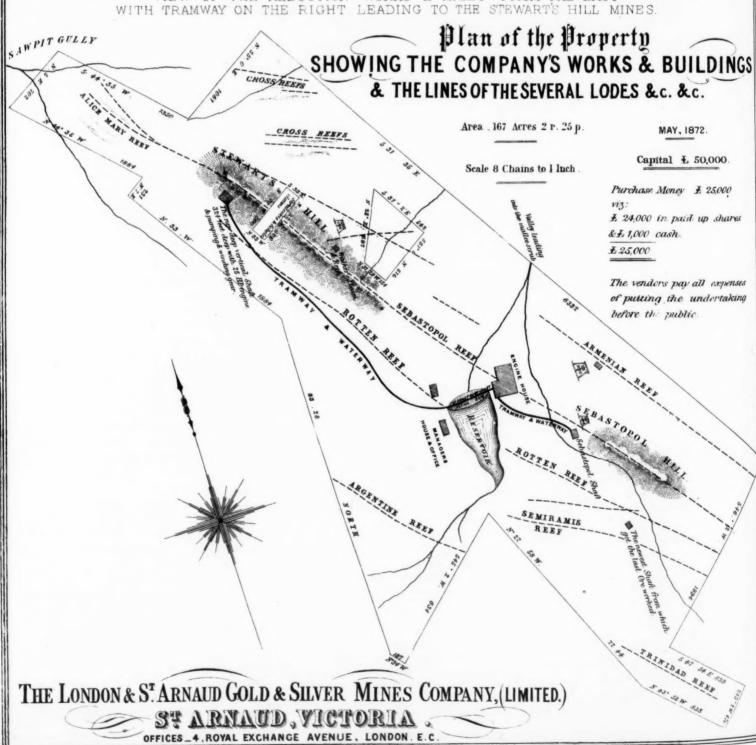
"The inspection of the North Costerfield Company's property leaves no doubt on my mind that the lode as now traced so near the boundary is continuous throughout its length, and I look upon the undertaking as legitimate, and almost free from speculative uncertainty, and therefore do not hesitate in giving it my unqualified support.

"Timber, both for mine works, erection of machinery, and firewood of the most excellent quality, and in great abundance in the immediate vicinity, will be procurable for years to come, and is now 30 per cent. under Sandhurst prices."

Plans and prospectuses with the fullest information may be had, and samples of ore taken from both mines can be seen, upon application to the London Agent (who has personally inspected the lode), 4, Royal Exchange Avenue, London, E.C.



WORKS



THE MINING JOURNAL, RAILWAY AND COMMERCIAL GAZETTE.

SATURDAY, MAY 18, 1872.

LIST of the PRINCIPAL DIVIDENDS PAID in VICTORIA DURING the MONTH ending FEBRUARY 24, 1872. ALLUVIAL.

	ALLUVIA			
Names of Companies,	Amount per Share.	Date.	No. of Shares.	Dividend.
Argyle, Linton's Band and Albion Consols, Ballarat Band of Hope, Maryborough Break-o'-Day, Rokewood Chapman's Gully, Beaufort Galatea, Scarsdale Golden Gate, Maryborough Golden Stream, Scarsdale Haddon. Haddon. Hagp Maryborough Key, Creswick Litle Stream, Smythesdale Royal Saxon, Beaufort Seaham, Maryborough Sedan, Ballarat Telegraph, Huntly United Hand and Band, Ballarat Young Duke, Beaufort	£ s. d. 0 4 0 0 7 0 0 4 0 0 5 0 0 5 0 0 5 0 0 5 0 0 5 0 0 10 0 3 0 0 3 0 0 3 0	Feb. 17 10 11 13 11 13 13 13 13 14 15 17 17 17 18 19 10 11 10 11 11 11 12 11 12 13 13 13 14 15 16 17 17 18 19 10 11 11 12 12 13 13 13 14 15 16 17 17 18 19 19 19 19 19 19 19 19 19	3,200 22,450 6,000 3,000 5 2,100 660 2,000 40 11, 5 6,000 40 25,600 25,600	£ s. d 64,0 0 6 8,448 15 0 750 0 6 750 0 6 105 0 6 105 0 6 102 0 6 102 0 6 200 0 0 200 0 0 120
All Nations, Blackwood Black Hill, Ballarat Black Hill, Ballarat Central Garden Gully Tribute, Sand-{	QUARTZ. \$\int_{5} \int_{6} \i	Feb. 3 77 10 78 24 79 24 79 24 70 10 71 10 71 10 71 10 71 10 71 17 72 24 71 10 71 17 72 17 73 17 74 10 75 17 77 10 77 10 78 17 79 17 79 17 79 18 70 10 71 10 7	\$00 2,480 2,480 1,500 1,500 10,000 3,000 24,1000 12,000 12,000 12,000 12,000 12,000 28,000 30,000 45,000 24,000 24,000 24,000 24,000 24,000 24,000 24,000 24,000 24,000 24,000 20,274	## 5 s. d. 87 10 0 6 6 20 0 0 0 6 20 0 0 0 6 20 0 0 0 6 20 0 0 0

.. Quartz

-					£94,704 14 C
DURING th	e MON	TH ending	MARCI	H 23,	1872.
Alma Consols, Maryborough Argyle, Linton's Band and Albion Consols, E Band of Hope, Maryborough Bute, Maryborough Galatea, Scarsdale Golden Lake, Springdallah Golden Stream, Scarsdale Haddon, Haddon Prince of Wales, Sebastopol Seaham, Maryborough	dallarat	\$\int s. d. \\ 0	March 2 11 16 12 2 13 9 14 23 15 2 16 17 16 17 9 18 2 19 2 19 2 20 16 10 9 21 2 23	6,000 3,200 22,450 6,000 40 2,100 4,400 2,000 64 8,343 6,000	£ s. d. 600 0 0 640 0 0 6735 0 0 600 0 0 1,500 0 0 1,100 0 0 1,100 0 0 1,100 0 0 1,20 0 0 256 0 0 834 6 0 1,200 0 0 1,100 0 0
		QUARTZ.			
Alfred, Sandhurst Black Hill, Ballarat Black Hill, Ballarat Cornish, Daylesford Cornish Daylesford Cornish United, Hepburn Garden Gully Tribute, Sandh Garden Gully Tribute, Sandh Garden Gully United, Sandhurst Freehold United, Handhurst Golden Fleece, Sandhurst Golden Fleece, Sandhurst Golden Sovereign, Sandhurst Great Extended Hustler's, S Great Extended Hustler's, No. 1. Sandhurst Lazarus New Chum, Sandhur Long Tunnel, Stringer's Cree New Chum and Victoria, San	burst	£ s. d. 3 0 0 0 5 0 0 13 0 0 10 0 1 0 0 0 0 6 0 0 6 0 0 6 0 0 6 0 1 0 0 1 6 0 1 0 0 1 6 0 1 0 0	March 9 16 19 23 19 23 19 26 19 19 29 29 29 29 29 29 29 29 29 29 29 29 29	2.4 2.480 2,000 1,300 800 2,400 23,750 6,000 20,000 20,000 24,000 28,000 45,000 2,400 25,000	6 s. d. 72 0 0 620 0 0 1,306 0 0 800 0 0 800 0 0 240 0 0 503 15 0 600 11 0 600 0 0 1,020 0 0 600 0 0 2,800 0 0 2,800 0 0 1,1200 0 0 6,800 0 0 2,850 0 0 4,800 0 0 4,800 0 0 6,980 0 0
New Chum and Victoria Tribu hurst	ate, Sand-	3 0 0 2 5 0 3 10 0	11 9 11 23	800	2,400 0 0 1,800 0 0 7,196 0 0
Old Chum, Sandhurst Royal Oak, Sandhurst Shenandoah, New Chum and		1 0 0 0 0 6 0 0 6	,, 23 ,, 16	2,056 27,000 24,000	2,056 0 0 675 0 0 600 0 0
Tribute, Sandhurst South Catherine, Eaglehawk Victory, Sandhurst	Bellevue	0 0 10	23 23 29	24,000 25,600 30,096	1,000 0 0 416 13 4 752 8 0 £59,169 17 4
Dividends paid by Alluvial M	lining Comp	anies		000	£16,082 6 0 50,160 17 4

THE MINES.

THE MINES.

Winter's Freehold Gold Mining Company, Limited, Ballarat, March 28, 1872.—The gutter worked from No. 3 Consols adjoining has been traced eastward to the junction of the Smythesdale Road, near the boundary of our paddock; its course was a little west of north; at last date of information about 40 feet wide, averaging 150 oz. per day. On February 26, I served all the directors and officers of the Consols with formal notice, cautioning them against encroachment. Since then their yields have fallen off very low, and it is presumed they cannot, or dare not, work the lead any further. The roads being debatable, have been hotly fought for by both parties, but I am happy to say the Winter's had the best of the struggle, and the Sebastopol Borough Council have granted permission to undermine the roads. With your experience you can guess we had no easy task to fight a rich and powerful body like the Consols. However, I think they have now "caved in," and we shall have no litigation at present, for which we are thankful. Mine Report, No. 1 Shaft.—The gold report of 600 oz, for the past month should assure you of the improvement in the mine. To the north and north-east the ground is looking very well; to the west we have got another jump-up (No. 6), through into wash, and are opening up the ground in that direction. The south low level is being pushed ahead to meet the No. 3 gutter, but the ground still continues very hard. When we break through at this point, I guarantee our returns will astonish your London shareholders, and I fancy some of our colonial ones. We have got more horses and men at work opening up ground, and from all appearances there is a steady improvement in the mine to be expected for some time to come. No. 2 Shaft.—The tributors at this shaft have got into better country, which gives promise of gold; a run discovered to the north of the shaft has averaged 7 oz. to the machine, but it is not sufficiently opened up yet. The tributors have not yet found the rich "red run" worked to our east bou

	Gold I						7410010	,	y are se	are P			Shaft			
	72.	-	OZ.	dwt.	OZ.	dwt			187	2.		OZ.	dwt.	OZ,	dwt.	
Mai	. 1		23	17					Mar	. 7		16	3			
,,	2		18	19					9.9	14		27	16			
9.9	5		29	1					99			38	O			
,,	6		27	19					2.9	28	***	25	4			
99	8		24	10								_	_	107	3	
22	9		20	15												
,,	II		15	1												
2.9	12		14	16												
9.9	14		34	3												
99	15		27	15												
**	16		21	16												
2.9	19		30	7												
22	20		17	12												
23	21		17	6												
99	22		17	13												
9.9	23		22	14												
99	25		37	18												
29	26		18	18												
	27		39	4 2												
9.9	28		34	2								Tota	al.	601	9	
					401	6										

This is the best news we have yet had from the mine. There has been a considerable amount of business in the shares during the month, and a parcel of 494 of the new issue sold by auction realized 31s. 2d. per share, 25s. paid. They are now bringing 33s.

sold by auction realized 31s. 2d. per share, 25s. paid. They are now bringing 33s.

THE MARINER'S REEF QUARTZ MINING AND CRUSHING COMPANY, REGISTERED.

—March 28th, 1872.—The first contract for cutting down the shaft to 273 feet is now completed. After Sleeman and party are out we shall begin about the boxes at once. During the month the contractors finished the shaft to water level, which is 273 feet is niches from brace. The pumps and rods are fixed, and I hope the ladder, skips, guides, &c., will be made complete to-morrow. We have called for tenders for cutting the shaft down from the 273 to the 550 feet level, to be returnable on Wednesday, 3rd April. No discoveries have been made by either of the tributors yet. Robson & Co, have left their tribute on North Mariner's, and have taken one on Soldier's Hill. It is not improbable, when the shaft is down to 400 feet, that the directors may decide to open out their first level south at that point.

Costereteed Gold and Antimony Company—During the past quarter ending

open out their first level south at that point.

COSTERFIELD GOLD AND ANTIMONY COMPANY.—During the past quarter ending 15th March, the revenue from gold was 868%; the stone crushed was 371 tons, and the yield 200 oz. 18 dwt., being 11 dwt. per ton; and 70% was also obtained for gold from a party of Chinese for cleaning up the Minerva battery-house. The revenue from antimony ore was 4020%, and from other sources 81% tos. As the charges were 3232%, a profit resulted of 1737% for the quarter. This profit permitted the directors to pay two dividends during the quarter, namely, 5s. per share on 8th January, and 10s. per share on 5th February. From the analysis of expenditure which accompanies this report, it will be seen that of the above charges 1084% was for repairing and shipping antimony ore, which will all come back to the company after the antimony is sold. The underground operations cost 1057%, crushing 140%, machinery 16%, firewood 150%, royalty on antimony ore 161%, and the remainder consisted of the usual charges incident to quartz mining. During the quarter the shaft on the lode at 420 feet level has been carried down to 94 feet from the level.

AUSTRALIAN AND NEW ZEALAND DIVIDEND GOLD MINES INVESTMENT COMPANY, LIMITED.

AUSTRALIAN AND NEW ZEALAND DIVIDEND GOLD MINES INVESTMENT COMPANY, LIMITED.

No. 1 Series.

No further purchases have been made on account of this company for the reasons specified by the agent in Victoria, as hereinafter mentioned. It was rather unfortunate that our first remittances arrived about one month or six weeks too late to secure some very first-class investments. For instance, instructions were sent out to buy—

Great Extended Hustler's at 80s., allowing a margin over the price at that time; these shares, with the tributes, are now worth over 20l.

New North Clunes ... then 570 ... now \$125\$

Long Tunnel , 80 ... , 120

Walhalla , 60 ... , 135 offered

North Cross Reef ... , 10 ... , 45

In most cases the rise took place within a week or two of the advices to buy reaching Melbourne. The agent writes: "I have not been satisfied with the prices ruling for such of the shares as I am open to select. The Old Clunes I made a slight slip in not securing, but I think they will yet come to my figure. The Garden Gully United, which I believe to be a thorough good mine, is I still think too high considering the position of the tribute claims. I have made an offer for 200 shares, and I see nothing to induce me to raise that limit as yet. On my late visit to Bendigo I learnt all that could be known about this claim, and the future prospects of it are certainly most encouraging. The New Moon and South New Moon have been very quiet of late, but they both stand well. The sinking of the shaft causes delay in getting returns, but I think there is no doubt whatever that both mines will soon resume the payment of dividends. North Specimen Hill Mines I also visited, and am satisfied that in a short time they will be right again. The deep ground prospects are sound, and operations in the mine are being carried on in a boná fide manner now. They delayed too long in getting the deep ground opened up, of there need have been no stoppage in returns. Some of the other mines are looking well, and returns may be

No. 2 Series.

No. 2 Series.

The New Zealand papers to hand are singularly bare of mining news this month. There is a great depression owing to the falling off of the Caledonian yields, but there is every probability of improvement in other mines as soon as the progressive work now going on in a number of the mines is completed. The Perfect Cure has been getting good stone, over 2 oz. to the ton, from a lode which will be the third lode to the Golden Crown and Caledonian claims. The dividends still remain at 105l. 2s. 9d.

No. 3 SERIES.

As will be seen in the remarks upon No. I Series, no purchases have been made this month. In addition to the purchases already noted will have to be added, 500 Mariner's Reef, and 50 Winter's Freehold, new issue. These latter are in demand in the colony at a premium.

NEW ZEALAND MINES.

TOKATEA, March 19th, 1872. — This company commenced, on Monday last, to send their stone to the New Zealand Company's battery, after accumulating a stock for fortiging.

a fortnight.

Shotover, March 19th, 1872.—A first trial crushing of stuff taken from the new country at the 384 feet level of this mine will be completed this afternoon, and, according to the amalgam in hand, is expected to yield at the rate of ½ oz. of gold to the ton. That the yield will be high enough, even if it should be less than ½ oz., to give a sterling character to the deep ground of this field, I have very little doubt, and also that the influence for good it will exercise upon mining here can scarcely be over-estimated. The trial crushing consists of 4 tons 2 cwt. of stuff which was part and parcel of some thirty tons of stuff promiscuously taken out of the last fathom or two of the shaft.

ALLUVIAL.—It is more than likely a considerable rise will take place in these shares ere very long.—Saunders'

Will take place in these snares ere very long.—Samuel Report.

Prince Imperial, March 22nd.—Fifty tons yielded 52 oz. of melted gold.

Caledonian, March 22nd.—A discovery was made of richer stone at the time the mail left, and about half a ton of specimens was ready to be sent to the mill. But so far it was impossible to form any idea of the extent or value of the discovery. A prospecting winze is being sunk on the lode from the present lowest level.

VICTORIA MINES.

VICTORIA MINES.

ENERGETIC, LAURISTON, March 4th.—The yield for the fortnight was 28 oz. The top stone is very patchy, and the manager recommends the letting of a contract to drive north, at the 195 feet level, where he knows there is a good strike of stone in the backs.

CENTRAL ENERGETIC, LAURISTON, March 4.—The yield for the fortnight was 35 oz. from 4 stampings. The stopes are in good working order, and for the future the manager will be able to keep the whole of the batteries employed, four of which he will use for the purpose of taking a trial crashing from the eastern reef.

COLIMANN AND TACCHI'S REEF COMPANY.—March 11, 1872.—The cleaning off on Saturday, 2nd instant, resulted in a yield of 450 oz. amalgam, being a large increase on late yields; we retorted on the same day. Yields for the month, 495 oz. gold. In stoping south of the winze a new body of stone was met with going off from the reef into the western wall. This stone has been worked already to a distance of 10 feet from the reef, and so far has proved an extensive payable body. The stopes throughout show much better this fortnight. In our prospecting drive to the east, 180 feet from the reef, and so far has proved an extensive payable body. The stopes throughout show much better this fortnight. In our prospecting drive to the east, 180 feet from main level, we have come upon a decided change of ground, and cut a most promising run of quartz bearing a large quantity of mundie.

March 25, 1872.—The cleaning off on Saturday, 16th instant, resulted in a yield of 394 oz. of amalgam for the fortnight's crushing. The stopes and spurs are looking first-rate, and an increased yield is expected for a considerable time to come. We have got the north block in the prospecting drive between Nos. 12 and 13 levels. It is a foot thick, shows gold, and there is a considerable amount of water coming from it. The shaft has been sunk a farther depth of 4 feet 9 inches.

HERCULES COMPANY, VICTORIA REEF.—March 11, 1872.—During the past fortnight we have crushed 135

3 feet. Total depth, 570 feet; ground hard. Shall now cut plat, leaving to feet for a well. East crosscut 480 feet; level extended 6 feet. Total length of drive 147 feet. Dividend of 1s. per share has been declared, payable on the 26th.

March 25th, 1872.—The present aspect of affairs in Sandhurst never presented so favourable an appearance, whether viewed from the standpoint of the market, or of mining pure and simple. The present time may be said to be one of the best that we have had in regard to the market. It is true that there is none of that extraordinary excitement which existed some months ago, but business is upon a much better status, and there is plenty to do for every one, and that in legitimate transactions. The stock dealt in is so good and has such excellent prospects, that a serious loss cannot result to those generally unfortunate people the "last in." When a mine is a good one, there can be no loss in the end. Where the loss occurs, and where the public are disgusted and turned away from speculation, is where the stock has no permanent basis, and its price lives only on the fickle breath of those who "rigged" it to serve their own ends. Fortunately our principal mining speculators hardly ever turn their attention to stock of that description, their reputation for sound judgment being at stake. During the week there has been a very good business in a variety of stocks. The New Chum and Belle Vue Railway Reserve has had the greatest attention, owing to their having begun to open out on the stone, which shows gold well, and the almost certainty that there will be dividends before the end of next month. Few companies began existence with such prospects as the New Chum and Belle Vue Railway Reserve. The Shenandoah Company have also had good attention, owing to their having struck the stone so successfully worked by their tribute. The prospects of this claim are first-class. Attention has been gradually drawn south on the line also, and the Eurela, Equity, New Chum, and Belle Vue Free-hold Tribute,

AUSTRALIAN & NEW ZEA-LAND DIVIDEND GOLD MINES INVESTMENT CO. (Limited).

No. 1, No. 2, and No. 3 SERIES.

Shares can be obtained in each of No. 1 and No. 2 Series at 5s. premium. Apply at 4, Royal Exchange Avenue, E.C.

No. 3 Series.—A small balance of these Shares to be had at par.

AUSTRALIAN AND NEW ZEALAND DIVIDEND PAYING AND PROGRESSIVE MINES.-Full and reliable information, with list of sound mines for investment, may be obtained on application to Thomas Dicker (late Editor and Proprietor of "Mining Record," Melbourne), 4, Royal Exchange Avenue, London, PROSPECTUSES, PLANS, AND VIEWS ARE NOW READY OF

The London and St. Arnaud Gold and Silver Mines Company, Limited,

The North Costerfield Gold and Antimony Mining Company, Limited.

The former is a large and most valuable property, with extensive plant, machinery, &c., &c., and contains the only Silver Mines yet discovered in the Colony of Victoria.

The Costerfield Mine, besides yielding rich gold, has the reputation of being the finest antimony lode in the

In the case of both these Companies, notwithstanding the proved richness of the lodes,

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The whole purchase-money, with the exception of two very insignificant amounts-£ 1000 in the one case and £1500 in the other—is agreed to be taken in Shares of the respective Com-

These undertakings are sound and legitimate in every respect, and in both instances speedy success may be counted

OFFICES-4, ROYAL EXCHANGE AVENUE, LONDON.

DICKER'S AUSTRALIAN AND LONDON MINING AND GENERAL AGENCY. 4, ROYAL EXCHANGE AVENUE, LONDON, EC.

List of Shares for sale in Australian and New Zealand Mines, under limited liability.

Mariner's Reef (Gold) Quartz Mining and Crushing Company.

The Winter's Freehold Gold Mining Company, Limited, Ballarat, Victoria.

Australian and New Zealand Dividend Gold Mining Investment Company, Limited, No. 1,

No. 2, and No. 3 Series. Golden Crown Gold Mining Company, Limited, Thames River, Auckland, N.Z.

The London and Thames River, N.Z., Golden Crown Company, Limited.

The Imperial Crown Gold Mining Company, Limited, Thames

River, Auckland, N.Z. Albion Gold Mining Company, Thames River, Auckland, No. 3.

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EXTRACTS FROM DICKER'S AUSTRALIAN AND LONDON GAZETTE.

London and St. Arnaud Gold and Silver Mines Company, Limited. Arnaud, Victoria, Australia.

Capital 50,000/., in 50,000 Shares of 1/. each.

24,000 Shares of 11. each, fully paid, allotted to present Proprietors.

26,000 to be allotted in England.

25, 6d. per Share to be paid on Application; 25, 6d, on Allotment; 5s. in Three Months; 5s. in Six Months.

The control is vested in the English Shareholders.

Directors in England.

G. A. Addison, Esq., 17, Charles Street, St. James's. William Branscombe, Esq., Herbert Lodge, 92, Pembroke Road, Clifton, near Bristol.

William C. L'Estrange, Queen's Hotel, Norwood, and 17, Merrion Square South, Dublin.

J. W. Walker, Esq., M.D., 3, Maze Hill, Greenwich, late Mayor of St. Arnaud.

(With power to add to their number.)

Directors in the Colony.

Gideon S. Lang, Esq., Managing Director (who will reside on the Mines).

William Cain, Esq., Railway Contractor, Melbourne.

Charles Dicker, Esq., Town Clerk, Dunolly, Vic-

Samuel House, Esq., Merchant, Melbourne.

Consulting and Mining Engineer. Francis Mauduit, Esq., C.E.

Bankers.

London and South Western Bank, Limited, 7, Fenchurch Street, E.C., London, and its Branches.

Auditor.

Geo. A. Rait, Ethelburga House, 71 & 72 Bishopsgate Street, E.C.

Secretary.

Thomas Dicker, Esq. (late Editor and Proprietor of Dicker's Mining Record, Melbourne).

Offices of the Company.

4, Royal Exchange Avenue, London, E.C.

The object of the Company is to work the St. Amaud Mines, in the colony of Victoria, for both silver and gold.

The property, which is leased from the Crown, is 167 acres 2 roods and 25 perches in extent, and embraces four parallel lodes. The length on their course, from north to south, is a few yards short of

The sole object of the Vendors being the efficient development of these Mines, which in point of tichness equal some of the most productive silver mines of America, they have agreed to accept the whole purchase-money in paid-up shares of this Company, saving a nominal amount, as hereinafter stated.

The Vendors have undertaken, for the sum of 25,000/., viz., 24,000/. in paid-up Shares of this Company, and 1000% in cash, to transfer the entire property, including the extensive plant, machinery, rolling stock, lease, &c., &c.

The Vendors pay all costs in connection with placing the undertaking upon this market.

The property is well known to and has been visited by the London Secretary.

The chlorides above water level were very rich, a series of assays-made by Mr. John Masters, late assayer, St. Arnaud, habitually employed by the local bank, and now of the Thames Gold Fields, New Zealand-giving in some instances as high a per-centage of silver as 12000z. per ton. The sulphurets below water were also very rich, the lode becoming more compact and richer as it goes down. In the deep shaft at 260 feet, a seam of the lode, $4\frac{1}{2}$ feet thick, averaged by assay 65 oz. of silver, and a large per-centage of gold. At 310 feet it was 13 feet thick, and the seam referred to had increased to a width of 6 feet, with a vein 12 inches wide, giving by assay 240 oz. of silver per

When the Agent of the Vendors left the colony, six bags of ore (sulphurets) were picked out from the refuse mullock heap on the surface, at the mouth of the deep shaft, Stewart's Hill, which, with three bags (bromides) taken from the new shaft on Rotten Reef, Sebastopol Hill, were shipped to London. Seven of these are now lying in the West India Docks. The other two bags, taken indiscriminately, on being sent to Messrs. Johnson & Matthey, the well-known refiners, of Hatton Garden,* for assay, were found to give the following profit-showing results, viz.:

NO. 1. LARGE LUMPS.

ht. Produce.

lib. oz. dwt.

7 ... gold 1 10 per ton of silver 37 0 20 cwt. Weight.

No. 2. SMALL PIECES.

Weight, Produce.
cwt. qr. lb. oz. dwt.

Bromides taken from | x x 5 ... gold 2 6 | per ten of above water level. | silver 5 0 } zo cwt.

[It is to be remarked, these assays were not of samples, but of considerable quantities weighing over 1 cwt. each.]

No. 3. REJECTED FROM NO. 1 AS UNFIT TO PASS THROUGH THE MILL.

> Produce. Weight. oz. dwt. silver 19 o per ton of

An average yield equal to half the amount of the lowest assay here mentioned would more than suffice to pay back to Shareholders their whole capital yearly.

From four samples of ore taken right across a portion (10 feet in width) of the lode, at the depth of 280 feet, the following results, by assay, viz., 23 oz., 58 oz., 155 oz., and 25 oz. of silver per ton of ore, with a paying per-centage of gold, were obtained by Mr. Masters.

The St. Arnaud being the only silver mines in Victoria, no one with any practical knowledge as to the treatment of the ore on a large scale could be obtained in the colony, and thus, at the beginning of mining operations, the Company failed in extracting the silver. Later on, machinery, identical with that used successfully at the Comstock Lode, Neyada, was erected. Here again, however -for reasons to be presently mentioned-only a very small portion of the silver known by assay to be contained in the ore was recovered.

" Messrs. Johnson & Matthey's certificates may be seen at the Offices of the Company. A fourth assay this last week of 3 qr. 9 lb. has given a return of 136 oz. of silver to the ton.

It was at length decided to send one of the proprietors to the silver camps of America, to ascertain the various modes adopted there, when it was at once seen that the character of the St. Arnaud ore differed entirely from that of the Comstock lode, which is pure, whilst the St. Arnaud is base, that is, mixed with other metals, and requires burning. These base ores they found could only be treated successfully by roasting, and that experience is corroborated by experiments that had been made in the laboratory at Melbourne. Up to the year 1870, however, there was no method known of roasting ore on a large scale, and many of the richest mines on the Pacific coast till then lay useless for the same reason as that of St. Arnaud, viz., the ore being base. The Stetefeldt furnace was then introduced. By it all such refractory ores are dealt with effectively, expeditiously, and at a small cost; and these useless mines are now amongst the most productive on the coast. Indeed, as much as 92 and 93 per cent. of the assay is commonly got at the mill at Reno, Nevada: the St. Arnaud ore was carefully examined and assayed, and found identical with some of the base ores treated there with the highest result.

Mr. John Phillips, for seven years the Government Mining Surveyor at St. Arnaud, and now Master of the School of Mines, Ballarat, who made a survey of the property, fully confirmed the high estimate formed of the property.

It is arranged for the Managing Director to return through Nevada, with the Consulting Engineer,* and proceed thence to Melbourne. Two of the patent Stetefeldt furnaces, capable of treating 200 tons weekly, would be erected, at a cost of 1000/. each, and returns of bullion be available from the Mines in a few weeks after beginning operations.

It is intended to carry on, uninterruptedly, the sinking of two main shafts on Sebastopol Hill and/ Stewart's Hill respectively (vide Plan and Views); and it is estimated, the treatment of 200 tons of ore per week from the deep ground will give a profit exceeding 50,000%. per annum. The pro-posed capital will be fully sufficient to open out the Mine extensively; and for that purpose alone the bulk is required, the plant and machinery being so well appointed as to need but few additions.

The bona-fides is shown in-

The purchase-money being paid in shares.

In the extensive property, including lease, plant, machinery, rolling stock, range of buildings, ores, &c., being handed over to the English Shareholders, and placed under their control.

In the moderate valuation placed upon the property, notwithstanding the proved richness of the lode.

As soon as sufficient capital is subscribed to erect the Stetefeldt furnaces, and open out the main shaft, the Directors will lose no time in having operations begun.

The engine shaft on Stewart's Hill, from which ore can be raised at once, is sunk to 320 feet. Besides this one, several others are down on the lode, most of which may be made presently available.

Machinery .- There are two engines on the ground, one of 40, and another of 25 horse-power; 20 head of stamps; 12 amalgamating pans, and a large amount of material, a list of which, as well as a number of photographs, can be seen at the offices of the Company. The entire plant and machinery are in efficient working order, and would, if not already erected, have to be provided. The necessary additions to the plant are simply furnaces and settling vats, which will entail only a comparatively small outlay.

Two agreements have been entered into between William Branscombe and Thomas Dicker, dated 9th May, 1872.

For Plans, Views, and Prospectuses, &c., apply to the Secretary, at the Office of the Company, 4, Royal Exchange Avenue, London, E.C.

Mr. Mauduit for nearly twenty years has had the management of both gold and silver mines in different parts of the world— Australia, Central America, &c.

to the Mills.

JOHNSON & MATTHEY, of Hatton Garden, have made the

The Vendors pay all expenses of

placing the undertaking upon this market.

&c. &c.

Reservoir

the Mills

Blacksmiths Shop

annexed assays from this Mine, which are not assays of single specimens, but, as will be seen, of considerable

99

not assayed

for

10

37

per

ton

of 20

parcels of ore .

OFFICES, 4, ROYAL EXCHANGE AVENUE.

CAPITAL, £50,000, IN SHARES OF £1 EACH.

7s. 5s. 5s.

6d.

per Share on Application.

in Six Months.

Allotment. Three Months

extensive plant, machinery, rolling stock, lease, &c., &c., &c. The Vendors have undertaken, for the sum of £25,000, viz., £24,000 in paid-up Shares, and £1,000 in cash, to transfer the entire property, one mile in extent, including the

HTIW THE CENTRE PORTION MOUNT 1 MOLIAGUL 80 COMPANY'S SUNDAY PROPERTY HILL LOOKING FROM THE WEST THE D DISTANCE

the mines at stewart's Hill Tramway & Aqueduct leading from Reduction Works Stamps House Tramway leading from the Sebastopol Mines to & open cuttings Sebastopol Hill Outcrop of